

overcome the multitude of complex and multidimensional problems that conservation biology faces in Latin America.

Fundamentos is not only the most recent textbook on conservation biology available to a Spanish-speaking audience in the last decades, it is also the best I have seen so far. Having said that, it is only fair to point out that the book is not error-free and that a few aspects of the book could be improved in a future edition. For example, the study cases (“recuadros”) are printed and presented in the same format as the main body of the text, in some cases interrupting the flow of its reading. I would suggest that, in a revised edition, the “recuadros” be self-standing, either in a different format or font, or somehow separated from the main body. Several typographical errors (missing commas, extra periods) are evident, and at least in one case they can be misleading: on p. 144 the species–area relationship is expressed as “ $S = cAz$ ” instead of the correct “ $S = cA^z$.” Nonetheless, for the amount of information that is presented in this textbook, the small editorial and typographical errors are easily disregarded.

In the preface, the editors write: “La idea central de este libro es que el bienestar de las comunidades humanas y el de las demás especies biológicas son complementarios y no opuestos.” (“The central axiom of this book is that the well-being of human communities is complementary to, and not opposing, that of other biological species.”) For the most part, they succeed in conveying this message throughout the book.

This book is a tremendous resource; it serves not only as a fact-finding reference to the biology and ecology of Latin America, but also as an encyclopedia of the conservation issues facing the region. Let’s hope that there is still time to instill a bit of ethics into conservation.—JORGE SALAZAR-BRAVO, *Center for Epidemiology and Zoonoses, Dept. of Biological Sciences, Texas Tech University, Lubbock, TX 79409, USA; j.salazarravo@ttu.edu.*

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Journal of Mammalogy, 85(1):171–172, 2004

Wainwright, M. 2002 [2003]. *THE NATURAL HISTORY OF COSTA RICAN MAMMALS*, with a preface by O. Arias. Zona

Tropical, S.A. 383 pp. + 38 plates. ISBN 0-9705678-1-2, price (paper), \$25.95.

This entertaining, clear, and fact-filled book might be classified as a hybrid between a field guide and a text on Costa Rican mammals. Its size precludes it from being an easy-to-transport pocket guide, but its depth and breadth more than make up for this. Containing an incredible wealth of information, *The Natural History of Costa Rican Mammals* is an excellent reference for serious naturalists, tour guides, educators, and researchers who teach or work in the tropics. Mark Wainwright is a nature guide and instructor for tropical ecology courses in Costa Rica, and has written and illustrated Costa Rican field identification pamphlets and children’s books. He also is an accomplished illustrator, and this book contains more than 400 of his original illustrations. He has firsthand experience with a considerable number of Neotropical mammals, including kinkajous (*Potos flavus*) that steal sugar water from his hummingbird feeders, agile olingos (*Bassaricyon gabbii*) that occasionally catch and consume hummingbirds at the feeders, and the poorly-known climbing rat (*Tylomys watsoni*) and vesper mouse (*Nyctomys sumichrasti*) that are house pests at Monteverde.

Wainwright’s expertise and observations emphasize mid-sized and larger mammals, and, accordingly, those accounts are stronger and more informative. A wealth of widely scattered scientific literature and unpublished thesis work, as well as his observations and those of others, is included. Educators, researchers, and naturalists will benefit from Wainwright’s literature reviews, especially those from unpublished theses, personal communications, and other hard-to-obtain sources. Numerous illustrations are provided for whole mammals as well as skulls, anatomy, tracks, maps of current distribution, scats, den sites, foods eaten, bat tents, and others.

Of Costa Rica’s more than 232 species of mammals, accounts are included herein for all the mid-sized and larger species and many of the smaller species. The West Indian manatee (*Trichechus manatus*) and one cetacean (*Sotalia fluviatilis*), also are included because both forage extensively in freshwater. Standard accounts include the sections Names (scientific, English, Spanish, indigenous names when available), Range, Size, and Similar Species, but the unmatched contribution of this work is the section for each species, Natural History, which provides an excellent summary of widely scattered literature as well as unpublished observations on diet, abundance, behavior, and much more. The remaining sections in the species accounts include Conservation, References, and, for some, Sounds and/or Mythology, in which Wainwright ties indigenous beliefs to contemporary biological concepts. I welcome *The Natural History of Costa Rican Mammals* for its wealth of basic and new information. Much of what is published on Neotropical mammals is a rehash of previous work and illustrations, which often are not properly credited. The accounts on northern naked-tailed armadillos (*Cabassous centralis*), greater grisons (*Galictis vittata*), and olingos are especially notable in providing new

information on very poorly known species. Wainwright provides focused summaries and new information on foods and other aspects of the biology of better-known species that have been studied elsewhere in the Neotropics, e.g., primates, kinkajous, collared (*Pecari tajacu*) and white-lipped peccaries (*Tayassu pecari*), white-tailed deer (*Odocoileus virginianus*), and Baird's tapir (*Tapirus bairdii*).

Conservation issues also are in sharp focus here. We learn that hunters kill an average of 900 pacas (*Agouti paca*) yearly in one 146-km² region, and that some paca farms are fronts for illegal paca hunters. In deforested areas, manatees have been observed to pull themselves partially out of the water to feed on pasture grasses. The book also describes some of the fascinating challenges faced by researchers and points out numerous questions that remain unanswered.

As noted, this work provides more accurate information on midsized and larger species than do many authoritative works. Primate distributions are particularly notable for their accuracy, and for the first time we see the correct distribution of the three genera of skunks found in Costa Rica.

Inevitably, some corrections are to be noted. Wainwright followed the older and more general published literature on some groups unfamiliar to him, in particular on shrews, suggesting that they are more widely distributed than they actually are. Rather than being found countrywide, *Cryptotis* live only at higher elevations, and *Cryptotis parva* is the species found only in the Central Valley surrounding the city of San José. The wrinkled-faced bat (*Centurio senex*) is a dry-forest endemic generally found only in the very seasonal northwestern lowlands. I am not convinced that crab-eating raccoons (*Procyon cancrivorus*) occur as far north or inland in Costa Rica as noted here and elsewhere. The lack of voucher specimens and the ready confusion of this species with the widely distributed northern raccoon, *Procyon lotor*, has led to a generous concept of the distribution of crab-eating raccoons in Costa Rica. The published literature on the 2 species of opossums (*Didelphis marsupialis* and *D. virginiana*) that is summarized here often does not correctly distinguish between the two.

Few regions of the world can boast more scientific publications in organismal biology per square kilometer than can Costa Rica. Wainwright's book is a significant contribution to the list of notable references for this country, most notably Frankie et al. (2004), Janzen (1983), McDade et al. (1994), Nadkarni and Wheelwright (2000), Reid (1997), Savage (2002), and Stiles and Skutch (1989).

Zona Tropical (www.zonatropical.net) is the publishing arm of Costa Rica's leading natural history bookstore, 7th Street Books in San José: this book may be more readily obtained from www.amazon.com. For the serious mammalogist visiting, working, or teaching in the country, the ideal combination will be to combine this with *A Field Guide to the Mammals of Central America & Southeast Mexico* (Reid 1997). Take both for the best combination of ecology, distributions, illustrations, comparisons between similar species, and systematics of Costa Rican mammals.—ROBERT M. TIMM, *Natural History Museum*

& Department of Ecology and Evolutionary Biology, 1345 Jayhawk Blvd., University of Kansas, Lawrence, KS 66045-7561, USA; btimm@ku.edu.

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Journal of Mammalogy, 85(1):172–173, 2004

Kubisiak, J. F., K. R. McCaffery, W. A. Creed, T. A. Heberlein, R. C. Biship, and R. E. Rolley. 2001. SANDHILL WHITETAILS: PROVIDING NEW PERSPECTIVE FOR DEER MANAGEMENT. Bureau of Integrated Science Services, Wisconsin Department of Natural Resources, Madison, 282 pp. No ISBN number, price (paper), \$25.00.

Sandhill Whitetails brings together some of the most compelling long-term research on white-tailed deer (*Odocoileus virginianus*) population dynamics and harvest effects since *The George Reserve Deer Herd* (McCullough 1979). Kubisiak et al. have compiled 30 years of deer research from the Sandhill Wildlife Area, 3,703 ha surrounded by a 3-m fence that was acquired by the State of Wisconsin in 1962. This book covers diverse topics in deer management, from harvest regulations and trophy-buck management to hunter perceptions and habitat changes. The authors are well established in the field of deer biology and human dimensions and have compiled this history of central Wisconsin's deer hunting heritage into an easy to read volume.

The book, written primarily for the layperson, begins with a synopsis of research objectives and future plans at Sandhill. Technical terms are highlighted in the text, with definitions in the margins. There also are occasional quotes in the margins from biologists who worked in the area, noting interesting or humorous observations from some aspect of Sandhill's past. The 1st full-length chapter discusses the history of the area, noting that it was named because of the numerous sandhill cranes (*Grus canadensis*) that used its marsh ecosystem. The next chapter