

BOOK REVIEW

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Bats of Puerto Rico: An Island Focus and a Caribbean Perspective. M. R. Gannon, A. Kurta, A. Rodríguez-Durán, and M. R. Willig; illustrated by J. Martz. 2005. Texas Tech University Press, Lubbock, Texas, USA (copyright holder for the world outside the West Indies). ISBN 0-89672-551-0 (paperback) xv+239 pp. US \$25.00

Bats are the most species rich and abundant of native Caribbean mammals, and studies of their distribution helped inspire such conceptual breakthroughs as the equilibrium theory of island biogeography (Koopman 1958). Some bats are keystone species because they sustain rich underground ecosystems by congregating in large numbers in cave colonies, while others pollinate flowers and disperse seeds, thus helping restore local forests. The people of the Caribbean have duly taken notice, including bats in the folktales and readily making use of their guano.

It is hard to envision a single field guide-style book to span decades of work on bat biology and at the same time provide insights into the natural history, landscape, and culture of Puerto Rico. Gannon and coauthors have accomplished just that. This book is welcome if only because the essential *Los murciélagos de Cuba* (Silva-Taboada 1979) is out of print and was published before most undergraduate students were even born. As it stands, *Bats of Puerto Rico* will likely become an instant classic among professional and amateur naturalists, and might even inspire a new wave of ecotourism to that part of the world.

The book begins by reviewing the natural history of Puerto Rico and, more generally, the ecological biogeography of the Caribbean region. Besides the typical treatment of species-area relationships, the introduction explores bat community ecology with unusual depth. The hypothesis that a core community of Antillean bats has been structured around food resources, while being shaped by hurricanes and the caves that provide shelter from them, is an original idea that some readers will encounter here for the first time (Rodríguez Durán and Kunz 2001). Right from the start the book is infused with a local perspective that is often lacking in field guides designed by and for foreign researchers. The advantages of this approach are apparent throughout, but they are more obvious in discussions on the role of bats in pre-Columbian and contemporary Puerto Rican culture. The second chapter balances such investigations of the links between humans and bats with standard accounts of bat biology. Here the authors dismiss the myths surrounding bats, aiming to muster public support for bat protection. With zoonotic diseases making headlines, scientists must offer a rational account of the health risks associated with bat populations. The authors achieve this, although a sterner warning about preventive rabies immunization for people working with bats than "should consider" (p. 49) is warranted.

The third and longest chapter of the book is devoted to species accounts including localities, cranial illustrations, bilingual (English/Spanish) common names, and a plethora of new data. All this is superb by itself, but the delightful drawings of bat faces in three-quarters profile make these accounts exceptional. The choice of cover art is not quite as brilliant: *Monophyllus redmani*, wings outstretched probably by the hands of a researcher, and apparently in distress. The Caribbean edition (University of the West Indies Press, Kingston, Jamaica, ISBN 976-640-175-6) seems to have a better picture of *Artibeus jamaicensis* on the cover. The photos portraying Puerto Rican landscapes, a cave, bat-like archeological artifacts, six bats and, remarkably, a boa in the act of swallowing one *Erophylla* would look better on glossy paper. Regardless, these 13 bat species have received such a thorough treatment here that one can only wish for many more books as beautifully illustrated as this.

A brief chapter on conservation highlights the precarious balance that bat populations endure, small-bodied yet unable to reproduce quickly, wide-ranging yet dependent on few suitable roosts. Climate change is absent from this discussion, perhaps implied in the mention of hurricanes, or because habitat degradation seemed a more imminent threat to bats. The omission is regrettable; neotropical ecosystems both insular and continental will suffer dramatically under all climate change scenarios. The warm ocean waters that foster tropical storms have already become more common, and the destructive power of hurricanes is greater than in recorded history, at least in part because of anthropogenic warming (Emanuel 2005). Although probably beyond the scope of the book, it is important to point out that many of the threats to bats are synergistic with climate change. For example: the sprawl that fragments natural habitats everywhere usually replaces natural vegetation, a carbon sink, with a landscape where people become hopelessly dependent on fossil fuels for transportation. The fragmented habitat is also more vulnerable to fire. The cumulative effect is to magnify the production of greenhouse gases, threatening the survival of the ecosystems that support both bats and us.

The final sections of the volume are packed with information that will be helpful to all sorts of Caribbean biologists: a dichotomous key, cranial and body measurements, a gazetteer, a list of plants bats feed on, a list of bat ectoparasites, a summary of karyological data, and a glossary. These details, evidence of the outstanding experience of the authors, round up a comprehensive and thoroughly engaging book. Minor criticisms aside, *Bats of Puerto Rico* is an indispensable reference volume and, at US \$19.95 for the paperback, accessible to scholars throughout the developing world. Buy it now lest we have to wait another quarter century for the next excellent book on Caribbean bats.

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