

NEWS

INDIA

Madurai Kamaraj University, Madurai: We are currently deeply immersed in research relating to the behaviour of bats. The following are the main topics: (a) neurophysiology of echolocation in microchiropteran bats of Madurai—Dr. K. Sripathi, presently lecturer in neurophysiology, is working on this problem; (b) circadian organization in the activity/rest patterns of microchiropteran bats and the relationship of light to the patterns—Dr. R. Subbaraj, now reader in our Department of Animal Behaviour and Physiology, works on this area; (c) spatial memory and marking of personal space, a comparative study of some features of roosting ecology of two hipposiderid bats, *H. speoris* and *H. bicolor*; and (d) prey capture by the Indian false vampire bat, *Megaderma lyra*. The last two lines of work are being carried out by Dr. G. Marimuthu, Lecturer in Animal Behaviour with me. All three gentlemen are my former students and obtained their Ph.D. working on problems of biological rhythms in bats. Dr. Marimuthu has made some very interesting findings on prey capture by *Megaderma*. He has found that on land they locate prey by passive hearing, but in the water they use echolocation to detect ripples of water caused by their prey (frogs).

I would further like to add that a new research project of mine entitled "Neurophysiological and Bio-

chemical Studies on the Behaviour of Bats" has been sanctioned for 1989-92 by the Department of Science and Technology, Government of India and the funding is to the tune of Rs.11,83,780/- which is good by our standards. Dr. G. Marimuthu has submitted a project entitled "Behavioural Ecology and Measures for Conservation of Bats" to the Department of Environment, Forests and Wildlife, Government of India, for funding. So you see, it is bats all the way over here in Madurai. [M. K. Chandrashekar]

UNITED STATES

CALIFORNIA

San Diego Natural History Museum: G. E. Cosgrove sent a reprint of the script of "Bats, Beautiful Bats," a children's musical bat program that shows children they need not fear bats while teaching them a lot about the natural history of bats. The program, produced and arranged by Susan M. Barnard of Zoo Atlanta, Georgia, contains cartoons, lyrics and music, slides (including some by Merlin Tuttle), and apparently some video sequences. The script appeared in *Animal Keepers Forum* (Vol. 14, pp. 485-492, Dec. 87). From a letter to Tom Griffiths by G. E. Cosgrove.

BOOK REVIEW

Greenhall, A.M. and V. Schmidt (eds.). *Natural History of Vampire Bats*. CRC Press, Inc., Boca Raton, Florida, 246 pp., illustrated, 1988. Price (hardbound), \$145.00.

This volume contains a diverse array of chapters, united by their focus on the biology of vampire bats, with particular emphasis on *Desmodus rotundus*. Unlike *The Vampire Bat* (Turner, D.C., Johns Hopkins University Press, Baltimore and London, 1975, 145 pp.), which was a monographic presentation of a 15 month field study of *Desmodus* ecology, this book is the long overdue answer to the call issued by La Val (*The Southwestern Naturalist*, 21:415-416, 1976) to publish a work on the "ecology, behavior and management of vampire bats throughout their geographic range." It contains 17 chapters; each begins with a short table of contents (with the exception of the Introduction) and ends with a list of references. Citations within the text unfortunately are designated by numeric superscript rather than by author's name and date. Numerous figures

and tables appear throughout the text, allowing the liberal inclusion of many photographs, most of high quality, of vampires under a variety of circumstances. Although the title seems to limit the content of the book to works on natural history, the chapters on genetics, anatomy, locomotion, salivary antihemostatic factors, and orientation and sensory function clearly exceed the most liberal interpretation of "natural history," unless that term is considered to be synonymous with "biology" itself.

Although the chapters are not organized into formal sections, the order of the contributions suggests five general areas of coverage. The first section (Chapters 2, 3, and 4) considers the evolutionary history of vampires from a systematic (Koopman), paleontological (Ray, Linares, and Morgan) and phylogenetic (Baker, Hon-

eycutt, and Bass) perspective. The second section (Chapters 5 and 6) reviews the general anatomical adaptations of vampires (Bhatnagar) and provides a detailed consideration of the functional morphology of locomotion (Altenbach). The third section (Chapters 7, 8, and 9) encompasses a variety of aspects of the behavioral ecology of vampires with particular focus on sociality (Wilkinson), reproduction (Schmidt), and foraging behavior (Greenhall). Physiological adaptations of *Desmodus* are considered in section four, wherein sensory functions in general (Schmidt) and anticholinergic factors in particular (Hawkey) are reviewed in detail. The final section of the book (Chapters 12-16) has a more applied focus, directed toward topics concerning disease (Constantine), parasites (Mendez), economic loss (Acha and Malaga Alba), and control (Lord). The introductory chapter by Tuttle provides a general overview of the study of vampire bats and the final chapter by Villa C. and Cavela R. reviews the folk history of vampires (real or imagined) in both the New and Old Worlds.

Clearly, the bulk of our knowledge regarding vampire bats is derived from studies of *Desmodus*; nonetheless, the authors have made heroic efforts to include data or references on *Diaemus* or *Diphylla* wherever possible. The format and style of the text are harmonious; Greenhall and Schmidt did a remarkable job of making the eclectic contributions as uniform as possible from an editorial perspective. Perhaps the only exception affects the bibliographies, which are frequently alphabetic with out-of-order citations appended at the end, or, in the case of the Introduction, not alphabetically arranged at all. A single bibliography at the end of the text would have been more utilitarian to most readers.

Natural History of Vampire Bats provides comprehensive coverage of the biology of the Desmodontinae.

Most topics for which adequate information has been published, with the possible exception of metabolism and physiology, are included and considered in a balanced fashion. As a result, little original research appears in the book, and in many places reading the text is reminiscent of browsing through an encyclopedia. In contrast, *The Short-tailed Fruit Bat* (Fleming, T.H., University of Chicago Press, Chicago, 1988, 365 pp.) summarizes current knowledge of a common neotropical phyllostomid but does so with a vigor and enthusiasm that is lacking in most of Greenhall and Schmidt's collection. Clearly, this impression may be a bias related to my own research interests. Nonetheless, I would guess that most biologists will find the *Natural History of Vampire Bats* is more of a book to refer to than a book to read.

The inclusion of many Latin American authors as well as contributors from Europe is a noteworthy accomplishment which adds a diversity of perspectives to the volume. Like most books from CRC Press, the cover is garish with a contrasting brick red and black background and silver letters. Otherwise, *Natural History of Vampire Bats* is a handsome tome. It is a shame that its price and distribution will probably make it difficult for most Latin American bat biologists to include it in their libraries. Moreover, the heterogeneous range of topics and price will probably prohibit even the most affluent scientists from including it in their personal libraries. Those fascinated by the unique and specialized adaptations of vampires, or interested in a detailed accounting of the biology of the Desmodontinae, will be certain to consider this book a critical reference.

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BOOK REVIEW

Kunz, Thomas H. (ed.). *Ecological and Behavioral Methods for the Study of Bats*. Smithsonian Institution Press, Washington, D.C. 533 pp., 1988. Price \$50.00 (cloth).

Accomplished researchers and enthusiastic students in the fields of animal ecology and behavior will benefit greatly from the wealth of information compiled and systematically presented within each of the twenty-nine chapters of this volume. The contributors are leading authorities in their fields and present the latest methodologies in bat research. This book gives direction to chiropteran research by providing continuity in procedures, techniques, and the analysis of data. The

brief chapter synopses that follow should convince readers that this book is a valuable milestone in bat research.

An excellent review of the techniques used to capture and hold bats is given by Thomas Kunz and Allen Kurta. They illustrate many capture devices and discuss the effectiveness of various capture techniques. Suggestions for protecting bats and minimizing stress while handling, holding, and transporting them are