



Lake Tanganyika and its Life.

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tions, plus well-documented diagnostic features that separate species. Sixteen color photographs, ranging from mug shots to bats in flight, introduce the reader to a variety of bat species. In addition, there are numerous black-and-white photos.

Any review of the bats of Texas would be remiss not to mention that more species of bats occur in Texas than in any other state in the union. A total of 32 species representing 4 families occur naturally in the state. Feeding diversity includes not only the typical insectivore, but also nectar feeding bats and one vampire bat.

When I moved to Texas 25 years ago, one of my goals was to write a treatise on the bats of Texas. Although I never fulfilled this goal, here the job has not only been well done, but also done in a timely fashion that reflects Schmidly's long-term commitment to bats, conservation, education of the general public, and quality work. I congratulate Professor Schmidly on this excellent accomplishment.

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THE MAMMALS OF THE SOUTHERN AFRICAN SUBREGION. *Second Edition.*

By John D. Skinner and Reay H. N. Smithers; color plates by Dick Findlay. *University of Pretoria, Pretoria.* \$68.00. xxxii + 771 p.; ill.; scientific, English, and Afrikaans names indexes. ISBN: 0-86979-802-2. 1990.

A comprehensive reference that synthesizes modern scholarship on the mammals of East Africa has been present for some time in Jonathan Kingdon's *East African Mammals: An Atlas of Evolution in Africa* (Academic Press, London, 1971-1982). This was not true for southern Africa until the first edition of *The Mammals of the Southern African Subregion* was published in 1983 by Smithers. The volume provided an exhaustive coverage of both terrestrial and marine mammals, and Smithers was an excellent choice as author, owing to his substantial field and publication record, particularly with large mammals in the more northerly regions of southern Africa. The first edition was a masterful summary that satisfied the need for a comprehensive reference.

The task of completing this second edition fell to Skinner, since Smithers died prior to commencing work on the revision. The second edition differs from and improves upon the first in three ways. The 1986 publication by J. A. J. Meester, I. L. Rautenbach, N. J. Dippenaar, and C. M. Baker of *Classification of southern African mammals (Transvaal Mus. Monogr., 5:1-359)* provided a firm taxonomy for this volume to follow, and eliminated the need for taxonomic discussion. Some species descrip-

tions include the addition of new data gathered since the early 1980s. Findlay was commissioned to provide the artwork, which includes 38 color plates (typically consisting of 4 to 6 species) and 5 black-and-white 3D plates of ungulate hoofprints, all of very high quality. Most of the excellent line drawings of skeletal morphology and 2D footprints in the first edition have been retained.

The book begins with a summary of the major biotic zones. The mammalian measurements and abbreviations are then discussed and illustrated, followed by a useful glossary of terms used in the text. The substance of the book is a detailed description of each species, beginning with a morphological description that includes measurements, coat and distinctions relative to similar species. Color plates are available for many species, and some species have line drawings of soft or hard anatomy, generally concentrating on diagnostic characteristics. The distribution is described, and a map of all of Africa showing the distribution of the species is provided. This is a useful device compared to the typical practice of restricting distribution maps to the subregion covered by the book. The discussion of distribution is followed by sections that describe habitat, habits, food and reproduction.

There is no specific theme to the book, and in this it differs markedly from Kingdon's explicitly adaptationist approach. The coverage of species varies, but I think this is not due to author bias, but rather to the fact that much more is known about the large mammals than the small. The book's consistent order, comprehensive coverage, scholarly content, and reasonable price make it a must for any individual with research interests involving African mammals.

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AQUATIC SCIENCES

LAKE TANGANYIKA AND ITS LIFE. *Natural History Museum Publications.*

Edited by G. W. Coulter; with contributions from J. J. Tiercelin, A. Mondegeur, R. E. Hecky, and R. H. Spigel. *Oxford University Press, London and New York.* \$115.00. viii + 354 p. + 2 pl.; ill.; index. ISBN: 0-19-858525-X. 1991.

When the first collections of specimens from Lake Tanganyika (East Africa) reached Europe one hundred years ago, the scientific world became aware of the fact that something spectacular in

terms of astonishing biodiversity was going on in this lake. Since then numerous scientists from a wide range of disciplines have studied the lake and have made it the focus of many active research programs. Aside from two local research centers in Bujumbura (Burundi) and Uvira (Zaire), most surveys are still carried out by several independent groups, in the form of expeditions. The last comprehensive review on the knowledge about Lake Tanganyika was written after the Belgian expedition in 1946–1947. Obviously, a substantial amount of new data has accumulated and an updated compendium was badly needed. Here it is: This book is the definitive summary of knowledge on Lake Tanganyika.

The book is divided into 10 chapters (1: Introduction; 2: The geology of the Tanganyika trough; 3: Hydrodynamics; 4: The nutrient regime; 5: The pelagic ecosystem; 6: Pelagic fish; 7: Fisheries; 8: The benthic fish communities; 9: Composition of the flora and fauna; 10: Zoogeography, affinities and evolution with special regard to the fish), each written by authorities in their fields. The book's attempt to explain the startling diversity found in every group of Tanganyikan organisms rests on the long and complex geological history of the lake, which is expertly and comprehensively described. First, a three-stage model of lake formation is presented that defines the time scale and marks the critical events in Lake Tanganyika's past. Next, the physicochemical environment is characterized, followed by a well-balanced presentation of the pelagic and benthic ecosystems. The chapter about fisheries not only evaluates potential yields, but also critically analyses the effects of various methods of exploitation on the species distribution. This book explicitly excludes the extremely complex and species-rich littoral fish community, since it was treated extensively in the recent book by Pierre Brichard (*Pierre Brichard's Book of Cichlids and All the Other Fishes of Lake Tanganyika*, T. F. H. Publications, Neptune City, 1989).

The characterization of the flora and fauna first outlines the main features of each taxonomic group, followed by summary tables of described species, and concludes with an evaluation of zoogeographic affinities and evolutionary history. The last chapter presents a synthesis of the evolutionary issues from the previous chapters. Instead of presenting yet another speciation model, Coulter links abiotic factors like the dynamics of lake formation and fluctuations of the lake level with biotic factors, namely the biogeographic distributions and intrinsic biological characteristics of colonizing species, in order to reconstruct the evolution of species assemblages in different habitats. This chapter includes a useful summary of the geological history of Lake Tanganyika, which is presented in two

illustrative tables. The author perhaps overemphasizes the importance of predation rather than competition, as the main driving force of speciation.

This book not only presents, as Coulter says, an excellent collation of the state of the art in the Tanganyika research, but also constitutes a big step forward to a better understanding of how this extraordinary complexity of the Tanganyikan ecosystem might have evolved. The book is very timely since several international research programs have been launched recently (FAO, FINNIDA and IDEAL: International Decade for the East African Lakes), and it is going to be the reference source for years to come. It provides a guide for further research priorities and undoubtedly deserves a wide readership. Its only drawback is the steep price, which might have been expected for a book that will be bought mainly by libraries and not individuals. Lake Tanganyika is such a widely studied lake that has served as a model for such a large range of questions in all natural sciences, however, and the publishers should have anticipated a larger need, and thus been able to reduce the price, since anyone interested in Lake Tanganyika will want to own this book.

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"LARVAL" AND JUVENILE CEPHALOPODS: A MANUAL FOR THEIR IDENTIFICATION. *Based on a workshop and symposium held in Banyuls-sur-Mer, France, 17-28 June 1985. Smithsonian Contributions to Zoology, Number 513.*

Edited by Michael J. Sweeney, Clyde F. E. Roper, Katharina M. Mangold, Malcolm R. Clarke, and Sigurd v. Boletzky. Smithsonian Institution Press, Washington, D. C. Price not available (paper). viii + 282 p.; ill.; no index. No ISBN. 1991.

GALÁPAGOS MARINE INVERTEBRATES: TAXONOMY, BIOGEOGRAPHY, AND EVOLUTION IN DARWIN'S ISLANDS. *Topics in Geobiology, Volume 8.*

Edited by Matthew J. James; Series Editors: F. G. Stehli and D. S. Jones. Plenum Press, New York. \$95.00. xiv + 474 p.; ill.; systematic and subject indexes. ISBN: 0-306-43794-5. 1991.

In the past ten years there have been at least five scientific review volumes on the Galápagos biota. Most of these have had their major focus on the terrestrial plants and vertebrate animals. This book is a welcome summary and addition to knowledge about another important part of the fauna, the shallow-water benthic marine invertebrates. To an "outsider," these volumes can give the impression that virtually everything is known about the biotas