

AUSTRALIAN BEETLES: MORPHOLOGY, CLASSIFICATION AND KEYS. *Volume 1.*

By John F. Lawrence and Adam Ślipiński. *Collingwood (Australia): CSIRO Publishing.* AU \$195.95. viii + 561 p.; ill.; index. ISBN: 978-0-643-09728-5. 2013.

This is the first of three scheduled volumes on the Australian Coleoptera. The first part covers chapters on the fossil history of Australian beetles, their habitats, collecting methods, morphology of adults, larvae, eggs, pupae, and certain aspects of their biology, such as reproduction and life history, symbioses, defensive adaptations, natural enemies, and economic significance. The second part is devoted to classification and includes a general classification of beetle families and keys to the families, separately for adults and larvae. The third and largest part includes treatments of all families with extensive descriptions of adult and larval morphology, a short account on the general classification, special descriptions of certain subfamilies or tribes, and a list of all genera that occur in Australia, with extensive references to literature on morphology and taxonomy. A more than 60 pages long list of references and an extensive index to names and terms closes the book.

This volume is based on the 1994 publication *Australian Insects* (J. F. Lawrence and E. D. Britton, Carlton (Australia): Melbourne University Press), but it is greatly expanded, not only in the sections on morphology, which include extensive descriptions instead of diagnoses, but also in the taxonomic part, which gives a detailed overview of the Australian beetle fauna. The much greater size of the book is not only due to more extensive treatment, but also to the considerable increase of knowledge since that previous volume, namely on fossil history, morphology of adults and larvae, and taxonomy of large parts of the Australian beetle fauna, which is well demonstrated by the great number of recent papers cited in the references.

The well-illustrated general description of beetle morphology, as well as the special descriptions of the families in the taxonomic section, offer almost a textbook of beetle morphology that certainly is not restricted to the Australian fauna, but can be used as well by anyone interested in general beetle morphology. In the section on taxonomy, the limits of many families are rather restricted. In some instances this family concept is disputable, but it allows a subdivision of former, large taxonomic units and a better characterization of the families, which is beneficial to the keys.

Apart from the extensive descriptions of all families, I want to call special attention to the chapters regarding the fossil record and to the detailed treatment of the larval morphology, as well as to the most useful key to the larvae. However, it is difficult to praise special parts of the book, because this would mean neglecting other parts, which are similarly informative.

This, and the two following scheduled volumes, which will include complete keys to all tribes, subtribes, genera, and subgenera of Australian beetles, certainly will raise coleopterology in Australia to a new level of knowledge and much improve any future work on morphology, ecology, taxonomy, and conservation of Australian beetles. It also will show, better than previously, the gaps in our knowledge and may easier direct scientists and field workers to those beetle groups or fields of study that need further attention.

To conclude, the present volume is an outstanding textbook of coleopterology and for many years will remain the bible for researchers interested in any aspect of Australian beetles.

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SNAKES OF THE WORLD: A CATALOGUE OF LIVING AND EXTINCT SPECIES.

By Van Wallach, Kenneth L. Williams, and Jeff Boundy. *Boca Raton (Florida): CRC Press (Taylor & Francis Group).* \$149.95. xxvii + 1209 p.; index. ISBN: 978-1-4822-0847-4. 2014.

The value of knowing the history and status of scientific names for species and genera is, perhaps, priceless. There are approximately 3,800 species of extinct and extant species of snakes and there are about 12,500 names associated with these species over their history. Indeed, this is essentially a history book of every scientific name used for snakes since Linnaeus. The effort to compile all of this information into a single volume required a monumental effort (over 30 years) and could be construed by many to be a thankless task, but let me say from the beginning that this is a marvelous, fantastic piece of work well worth the cost of 12 cents per page.

The volume is a worthy dedication to Douglas Rossman, eminent herpetologist and Emeritus Curator and Professor of the Louisiana State University Museum of Natural Science, with whom all of the authors earned graduate degrees. The introduction gives a brief history of the major works of previous compilations and lays out the methodology behind the authors' approach to building the volume. Because of the massive content of the catalogue, Wallach et al. kept their remarks to a minimum, which does not diminish the quality of the information presented. Each genus account includes the author and year and, in parentheses, the family. That information is followed by synonyms, type species, distribution, fossil records, sources, and remarks. The species accounts have the same categories, except type species is replaced by type (specimen), and type locality. Latin notations (e.g., *incertae sedis*, *nomen in-corrigendum*, *nomen nudum*) follow the names where appropriate. The organization is alphabetical by

genus, so there is no need for prior knowledge about family contents to find a genus. It is very simple to use. The index contains species and genus names only, with valid names in bold. The literature cited includes every author for every species description and all of the other works cited. Perhaps the literature cited section is worth the price of this volume.

Sure, there are minor things that one could quibble about. Sometimes you might wish for elaboration in the remarks, especially when discrepancies with earlier works appear, such as the type species for *Eumeces* or *Trimeresurus*. The snake classification in Table 1.2 may attract attention, but whether Scolecophidia is monophyletic or not, or what the contents of the Anilioidea (they do treat this as *incertae sedis*) versus the Henophidia are, really do not matter for the reason to own this work. You want to own this book for the wealth of information in the genus and species accounts, the literature cited, and the beautiful simplicity of using it. Oh, and the cover has an impressive photograph of a cobra head.

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THE BIOLOGY OF CHAMELEONS.

Edited by Krystal A. Tolley and Anthony Herrel. Berkeley (California): University of California Press. \$65.00. xii + 275 p. + 16 pl.; ill.; index. ISBN: 978-0-520-27605-5. 2014.

Chameleons are among the most recognizable of reptiles. Turreted independently rotating eyes, laterally compressed bodies, upright posture, and mitten-shaped grasping feet, combined with capabilities for dramatic color change and accurate prey capture by ballistic tongue projection are simultaneously bizarre and charming. These features comprise a suite of specializations of arboreal predators that use cryptic color, pattern, and behavior for their own defense; a chameleon does not have to move its body to effect rapid prey capture over a considerable distance. Features unique to chameleons have attracted scholarly attention, particularly with regard to functional anatomy, physiology, and behavior. This book is the first comprehensive review of chameleon biology; it provides a summary of the comparatively well-documented aspects of their biology and identifies aspects where information is limited.

Chapters on morphology, physiology, and behavior emphasize the most distinctive features of chameleons: feeding, locomotion, vision, and color change. Descriptions of the anatomy of the head, hyobranchial apparatus, and the eye, for example, provide background information for discussion of the functional mechanics of tongue projection and the use of accommodation to judge distance by one eye inde-

pendently of the other. Locomotion and behavior are similarly discussed from anatomical and functional perspectives. The evolutionary origins in Africa and subsequent radiation of chameleons in Africa and Madagascar are discussed in chapters on their fossil record, systematics, and biogeography. The systematics chapter provides an overview of the 11 extant genera, and the 196 species described as of 2012 are listed in an appendix. The rate of discovery of new species has accelerated in recent decades because of the exploration of areas poorly represented in collections and the use of molecular techniques to identify new taxa. The remaining chapters treat ecology, life history, and conservation issues. For the most part, chameleons do not present unique features with regard to these topics, but because of the paucity of autecological and population studies, this assessment may be premature.

The targeted audience of this book is the research community. Given the broad appeal of chameleons, and a potentially wider readership, however, I was disappointed by the small number and poor quality of the images. Tongue projection, that quintessential chameleon feature, is illustrated by a tiny monochromatic grey photograph of prey capture and by an equally undistinguished photograph of tongue morphology. Although the quality of the color photographs of chameleons and their habitats is very good, these and other color images are not associated with relevant text but are distractingly bound together as a separate unit.

Taken overall, this book is an excellent and timely addition to the natural history literature for both professional biologists and other chameleon aficionados. The chapters are valuable sources of information on chameleons and, with more than 700 citations, to the primary research literature.

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THE MAP TURTLE AND SAWBACK ATLAS: ECOLOGY, EVOLUTION, DISTRIBUTION, AND CONSERVATION. *Animal Natural History Series, Volume 12.*

By Peter V. Lindeman; Foreword by Anders G. J. Rhodin. Norman (Oklahoma): University of Oklahoma Press. \$45.00. xxi + 460 p.; ill.; index. ISBN: 978-0-8061-4406-1. 2013.

The genus *Graptemys* displays a variety of ecological and evolutionary characteristics that are unusual among turtles. For example, *Graptemys* is among the most speciose and rapidly diversified turtle genera, contains species with both some of the smallest and largest geographic ranges among North American turtles, and contains species that exhibit the most extreme examples of sexual size dimorphism documented in tetrapods. Despite this, the genus also contains many of the least studied species of North American turtle. For example, basic ecological as-