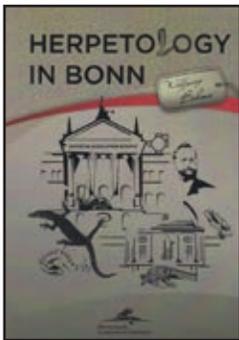


BOOK REVIEWS

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Herpetology in Bonn

Wolfgang Böhme. 2014. Deutsche Gesellschaft für Herpetologie und Terrarienkunde (DGHT), Mannheim, Germany (www.dght.de). Mertensiella 21. vi + 256 pp. € 39,80 (approx. US \$43.00), € 29,80 (approx.. US \$32.00) for DGHT members. Softcover. ISBN 978-3-945043-02-8.



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I am especially fond of the history of natural history, including herpetological biography and the history of collections. I am also a sucker for a good type catalogue. *Herpetology in Bonn* has all of this plus it focuses on herpetology in a city that I have

known and loved for more than 30 years, so I admit a positive bias. Bonn, the former capitol of the Federal Republic of Germany, is known to many as a herpetological Mecca in Europe and indeed, as described by Kraig Adler in the preface of the book, it is “perhaps the most active herpetological center in Europe.” No man is an island but as much as any one institution can owe its reputation to one person, Bonn owes its herpetological fame to Wolfgang Böhme, whose boundless activity and prodigious production of both publications and students transformed Bonn from herpetological backwater to powerhouse.

The book focuses on the history of herpetology in Bonn, especially at the Museum Koenig (ZFMK) and at the University of Bonn. However, it paints a much broader picture of German (and global) herpetology, as Böhme integrates into his narrative the stories of many people whose professional activities intersected with these focal institutions, even if tangentially. The history of herpetology in Bonn predates both the Museum Koenig (opened to the public only in 1934) and the Rheinische Friedrich-Wilhelms University (founded 1818), and begins with the description of a gecko, in 1809, by Dr. Johann Heinrich Crevelt, a personal friend of Bonn’s most famous non-herpetologist, Ludwig van Beethoven. For the remainder of the 19th century and into the 20th century, herpetology in Bonn was centered at the University. Among the herpetologists who were associated with the museum were Georg August Goldfuss, a paleontologist and the first to reconstruct fossils, Franz Herrmann Troschel, known to Americans as the describer of *Cophosaurus texanus*, and Franz von Leydig, a prolific anatomist and histologist. However, many other figures made contributions large or small, as students or staff, and all have been captured in this book. They include Johannes Müller, who later gained fame as a faculty member in

Berlin, Wilhelm Pflüger, whose *Archiv*, founded in 1868, is the oldest surviving journal in the field of physiology, and Max Weber, who described reptiles from South Africa and Indonesia. Also treated are users of the collections, most notably Giorgio (Georg) Jan, who used snakes from Bonn in his *Iconographie des Ophiidiens* (1860–1881).

In the 20th century workers at the university included Wilhelm J. Schmidt, whose numerous papers on the reptile integument remain landmarks, and Fritz Bodenheimer, who left Bonn for Israel and published important herpetological works on Turkey and Palestine. The destruction of Poppelsdorf Castle, home of the zoological museum, in World War II put an end to the importance of the University of Bonn as a site of traditional collections-based herpetological research. However, herpetology has continued to thrive there through the work of Hans Schneider, known for his research on anuran bioacoustics, Steven F. Perry, who has worked extensively on reptile lungs, and Martin Sander, who carries on the long tradition of paleoherpetology in Bonn started by Goldfuss, among others.

The history of herpetology at the Museum Koenig begins with the activities of Alexander Koenig, who grew up in Bonn in the Villa Hammerschmidt, the “White House of Germany” and, until reunification, the primary residence of the German federal president. Koenig was chiefly an ornithologist, but he also collected amphibians and reptiles. Material from his expeditions to Tunisia, Libya, Egypt and Sudan were sent first to Oscar Boettger in Frankfurt and later to Lorenz Müller in Munich for identification. It was not until 1930 that the first herpetological catalogue was initiated at the Museum Koenig (then still a private collection) and not until 1951, when the first herpetologist, Karl Buchholz (1911–1967), was hired. Buchholz worked chiefly in Greece and the Balearic Islands. Greece was also the focus of the second curator Ulrich Gruber, who remained with the small collection for only three years before moving to Munich.

The meteoric rise of herpetology in Bonn began with the arrival, in 1971, of Wolfgang Böhme, a freshly-minted Ph.D. from the University of Kiel, in north Germany. Although his herpetological interests were global, Böhme distinguished himself as an expert in Africa, as well as the Palearctic. He conducted three expeditions to Cameroon in the 1970s, the first in 1973, in the company of Martin Eisentraut, then director of the Museum Koenig. Eisentraut was chiefly a mammalogist, but had published extensively in herpetology as well. By the end of the 1970s the herpetological ranks of the ZFMK had grown through the addition of Wolfgang Bischoff, an expert in lacertids from Magdeburg in the then German Democratic Republic, Ursula Bott, Böhme’s assistant, and Klaus Busse (ostensibly the ZFMK ichthyologist, but known to herpetologists through his work on Darwin’s Frog, *Rhinoderma*).

Growth in the ZFMK collection was augmented by the incorporation of several historical collections from other institutions,

shrewd acquisitions by Böhme that not only enriched Bonn, but saved invaluable material from obscurity and neglect. In 1972, herpetological specimens from the collection of the University of Kiel were obtained in exchange for a neuropteran collection from Bonn. This yielded historically important material from the collection of Friedrich Boie, some of which originated from his brother Heinrich and also Heinrich Kuhl, both of whom died as young men while engaging in the herpetological exploration of Java.

The most important acquisition was that of the Zoologisches Museum of the University of Göttingen in 1977. This collection, rich in types, had been built-up and enriched by generations of curators and donors including Johann Friedrich Blumenbach, Adolph Arnold Berthold, Moritz Wagner, Wilhelm Keferstein, and Jacques von Bedriaga. Göttingen's inclusion in the book has allowed Böhme to discuss important users of this ancient collection, like Johann Gottlob Schneider, Alexander Strauch, George A. Boulenger, Franz Werner, and Willy Wolterstorff, thereby expanding the scope of the volume considerably. This also brings into the book a discussion of the Museum Godeffroy, an institution that sold specimens to museums throughout Europe in the second half of the 19th century. Here I can perhaps resolve a minor mystery outlined by Böhme who mentions (p. 62) a Göttingen specimen of the Fijian iguana, *Brachylophus fasciatus*, supposedly collected by Eduard Graeffe, working for the Museum Godeffroy, in Samoa, where the species is not known to occur. Reference to the now rare published sale catalogues of the Museum Godeffroy reveals that Graeffe visited Viti Levu, Ovalau, Moturiki, Nagarra, Kandavu and the Exploring Group in Fiji and that the single *Brachylophus* for sale came from the "Viti-Inseln" [= Fiji] (Schmeltz 1869). Presumably the same specimen (the same specimen number is listed) appeared in a subsequent catalogue as being from "Viti- u. Tonga-Inseln" [Fiji and Tonga] (Schmeltz 1874). If this is the specimen purchased by Göttingen and now in Bonn, the Samoan provenance must be considered an error introduced subsequent to the sale.

More recent acquisitions have included the herpetological collection of the University of Heidelberg (1984), which contained significant historical material and, most spectacularly, the Paul Müller collection of approximately 10,000 specimens, 70% from Brazil, transferred from Saarbrücken within the last decade.

In addition to collection development, the physical arrangement and features of the ZFMK herpetological collection and its live animal facilities are described as are the public exhibits in herpetology. These last are mostly a post-WWII feature of the Museum Koenig, and major modern exhibits with herpetological content, such as a large African savannah exhibit that dominates the ground floor of the museum and a new African rainforest exhibit that is advancing towards completion, were strongly influenced by Böhme.

The growth of the ZFMK collection has been mirrored by a series of type catalogues published over the years. The first (Böhme 1974) listed only 34 names and 22 name-bearing types. Böhme and Bischoff (1984) published a second type catalogue, and a third was prepared in conjunction with Böhme's official retirement (Böhme 2010). The latest type catalogue is included in *Herpetology in Bonn* as Chapter 4. This incarnation includes 663 herpetological types, 337 of them name-bearing.

Although type catalogues are often considered mere compilations, simply copied from museum records, this is a naïve view, held only by those who have never written one. A good type

catalogue, and this is a good one, provides a wealth of historical and taxonomic information relevant to the specimens discussed. Indeed, sometimes an individual account can spiral out into the equivalent of a separate paper. Some entries are hugely detailed, including those for *Megophrys montana* Kuhl and van Hasselt, 1822 and *Calamita punctatus* Schneider, 1799—the latter three pages long and illustrated with five photos.

Accounts in the type catalogue give original publication, specimen number, collector, date, and comments on types other collections, current name, and recent relevant systematic or distributional information. A section on lost or missing types is also provided. These comprise only 10 amphibians and 13 reptiles, chiefly from the historical collection of Göttingen, such as the type of *Acanthosaurus gibbosus*, Berthold, 1846, a long forgotten synonym of *Moloch horridus*. A more modern lost specimen is the holotype of *Kinyongia vanheygeni* Nečas, 2009, which was stolen in a car break-in after its ZFMK registration number was assigned, but before it reached the museum!

The catalogue is a rich source of information and reflects Böhme's scholarship and his broad and deep knowledge of nomenclature, history, and all things herpetological. The catalogue of extant types includes material representing 18 nominal salamander taxa, 230 frogs, two caecilians, eight turtles, two crocodylians, 76 snakes, and 331 lizards (dominated by gekkotans – 110; lacertids – 72, skinks – 39, and chameleons – 31). Interestingly, a paratype of *Gallotia intermedia*, ZFMK 62798, was still alive at the time of writing. Among the most noteworthy nomenclatural actions taken in the catalogue is the designation of a lectotype of *Scincus laticeps* Schneider, 1801 (= *Plestiodon laticeps*), one of two original types cited by Schneider and derived from the Göttingen collection.

A list of types by source countries reveals 74 nations of origin, with Madagascar represented by the greatest number of types (64) followed by Indonesia and Vietnam with 20 each, and Spain, Iran, and Colombia close behind. Modern sources of types include many former and current ZFMK students and associates, but also specimens used by other workers from across Germany and Europe and around the world. From the 1990s onward it has largely been students driving the growth of the collections and the regions and taxa of strength, both among the types and in the collection in general, reflecting themes in Böhme's research and that of his students.

The lasting influence of Böhme on herpetology is really shown in a section of the book focusing on teaching and education. He has taught courses at the University of Bonn and for more than 40 years has led a legendary annual field course to Neusiedlersee in Austria. Böhme mentored 142 diploma and masters students and 46 doctoral students, most of them dealing with herpetological themes. Many of these, including Frank Glaw, Thomas Ziegler, Jörn Köhler, Miguel Vences, Andreas Schmitz, Thomas Wilms, Philipp Wagner, André Koch, Dennis Rödder, and Claudia Koch (the last two his successors at the ZFMK), completed two advanced degrees with him. Others students (doctoral degree only with Böhme) have included Mathias Lang, Frank Brandstätter, Mark Auliya, and Nguyen Quang Truong. Numerous postdocs, visiting students, and others have also benefited from Böhme's mentorship and support in Bonn. These include: Scott Moody (USA), Abidin Budak (Turkey), Charles Klaver (Netherlands), Zbigniew Szyndlar (Poland), David Tarkaschvili (Georgia), and Khalid Baig (Pakistan). For each of these mentees a synopsis of their published works and current positions are provided. Collectively these students—and their

students—have had a tremendous impact upon herpetology in Europe and beyond. They include professors, curators, and institutional directors from across Germany and in other parts of the world.

Another chapter of the book summarizes the organizations associated with the ZFMK and the symposia held there. The Museum Koenig has hosted a series of Tropical Symposia and Varanid Symposia, as well as conferences devoted to agamid lizards, *Zootoca vivipara*, and the herpetology of the Canary Islands. Of greatest importance, however, are the meetings of the DGHT (Deutsche Gesellschaft für Herpetologie und Terrarienkunde) and the SEH (Societas Europaea Herpetologica). The foundational meeting of the latter was held in Bonn in 1979 and Böhme vividly describes the birth of this pan-European society and provides photos of the historic event. The SEH Ordinary General Meetings were subsequently held in Bonn twice, in 1995 and again in 2005, whereas the annual DGHT meetings were hosted in 1977, 1991, 2013, and 2014. The centrality of Bonn for these societies is no accident; Böhme has held both the chairmanship of the DGHT and the presidency of the SEH and for a number of years the DGHT was based in Bonn, with Wolfgang Bischoff serving as editor of its flagship journal, *Salamandra*.

Literature citations in *Herpetology in Bonn* are distributed throughout the chapters and, in all, approximately 1250 references are cited. These serve as a portal to many fascinating publications, many of which will be unfamiliar to American readers. Indeed, I have been working my way through the references, copying or downloading those I am lacking. The citations are wonderfully complete as well—a bibliographer's dream. I noted only one incomplete citation (pagination is lacking for Blumenbach 1779).

There is little to complain about in this book, but I will note a few minor issues, most of which are probably the result of the fact that the book was produced on a tight schedule to allow it to be released in conjunction with the 50th anniversary meeting of the DGHT in October 2014. The English is especially good early in the volume, additional rounds of language proofing were foregone for the rest of the book, so native speakers may find a few awkward phrases, although everything is, of course, fully comprehensible. For example on page 57 “prices” should be “prizes.”

There are just a few minor inconsistencies and typographical errors scattered through the text. On page 39 the year of Karl Buchholz's death is given as 1964 (it is correctly noted as 1967 elsewhere) and on page 65 Ferdinando Sordelli's year of birth is given as 1937 (instead of 1837). On page 72, the date of donation of the Paul Müller collection is given both as 2008 and 2010. On page 143, the degree signs (°) in the geographic coordinates for *Echinosaurs brachycephala* appear to be represented by “E”s. Contrary to the implication on page 62, the journal *Brimleyana* was neither founded nor run by the Brimley brothers. It was started in 1979, long after the death of the Brimleys, both of whom died in 1946.

A few additional features would have been handy in the type catalogue. First, I always prefer that type catalogues provide the verbatim type localities, set off in quotes. This is done in some instances, but not consistently. There is also some inconsistency in the listing of current names, if different from the original names. These are generally provided in the “Comment” section of each account, but there are a few exceptions, e.g., *Cyrtodactylus kotschy* subspecies (p. 136) are currently placed in *Mediodactylus*. Likewise, taxa described with trinomials, but now regarded as specifically distinct, are not noted as such. A separate

bold header for current names in the accounts and alphabetized cross references to these names would also have been useful (although admittedly this adds space and current names are liable to change).

Who should buy this book? This is a book that has something of relevance for anyone working on any of the hundreds of taxa represented by types in the ZFMK collection. It is also a book for anyone with even the slightest interest in the history of herpetology. Along with Rieck et al. (2001), this book is an essential tool for understanding the history of German herpetology, and, with the volumes of *Contributions to the History of Herpetology* (Adler 1989, 1995, 2012, 2014), it will be a critical resource for the history of herpetology more globally. Indeed, by providing a single-authored narrative of the interconnectedness of researchers, collections, and institutions it complements these sister works, in which history is told chiefly through separate personal or institutional biographies. Finally, for the literally thousands of herpetologists worldwide who have interacted in some way with Wolfgang Böhme over the years, this book provides a fitting memento of a unique personality and an incredible (and still vibrant) career. The book ends with a short “Outlook and epilogue” chapter about the future of herpetology in Bonn. Regardless of future prospects, one thing is certain—there will never be another Böhme.

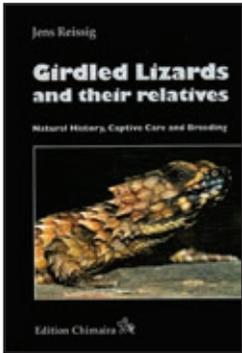
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Girdled Lizards and Their Relatives. Natural History, Captive Care and Breeding

by Jens Reissig. 2014. Edition Chimaira, Frankfurt am Main, Germany (<http://www.chimaira.de>), 249 pp. Hardcover. €39.80 (approx. US \$44.60). ISBN 978-3-89973-437-9.



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This well-produced book, herein referred to as *Girdled Lizards*, forms yet another part of the excellent series of specialist herpetological monographs published by Chimaira. Girdled lizards and their relatives comprise the Cordylidae, armored scincomorph lizards endemic to Sub-Saharan Africa. The family includes two subfamilies

and 10 genera, with 80+ recognized taxa (Stanley et al. 2010 and subsequent updates), with the majority of diversity and endemism occurring in southern Africa, particularly South Africa (50 taxa, 70% endemic). Its members display a wide variety of morphologies, life histories, and behaviors, and have been the subject of numerous recent studies in South Africa (see accounts in Bates et al. 2014 and references therein). Most studies have been directed at the Cordylinae, a group of viviparous, mainly small (maximum SVL *Smaug giganteus* 145 mm), sedentary ambush predators. These characteristics make them ideal candidates for the international pet trade and captive husbandry, and due to concern and perceived threats from the international pet trade to a number of charismatic cordylids (e.g., the Armadillo Girdled Lizard *Ouroborus cataphractus* and Giant Girdled Lizard *S. giganteus*), all *Cordylus* and *Pseudocordylus* species are placed on CITES Appendix 2 (Broadley 2006). This bulk listing has always been controversial as many cordylids are conspicuous components of the Cape herpetofauna, and are among the commonest lizards in the region. The majority of species are of Least Concern (Bates et al. 2014) and the inclusion of all of these unthreatened species on CITES was at best inaccurate, at worst lazy. Moreover, the existing CITES list is now compromised by taxonomic adjustments (Stanley et al. 2011), and also by the most recent conservation assessments that have lowered the threatened status of many of the southern taxa. For instance, the perceived threat of unsustainable collecting for the pet trade of *O. cataphractus* has never been substantiated and the species was, therefore, recently downgraded from Vulnerable (IUCN 2014) to Least Concern in the latest iteration of the South African Reptile Red List (Bates et al. 2014).

The numerous recent research studies on cordylids have resulted in new understanding of phylogenetic relationships, distribution, ecology, behavior, etc., and the time was ripe for a synthetic family summary such as *Girdled Lizards*. However, it is important to note at the outset that despite its title *Girdled Lizards* does not include all cordylids, for it excludes the subfamily Platysaurinae (15 species, 29 taxa) and also the cordylid Grass Lizards (*Chamaesaura*; five species, six taxa). The former includes the oviparous Flat Lizards (*Platysaurus*), famed for their dorsoventrally depressed bodies and the use of stunning sexual

dichromism by males in both territorial and mating displays. Grass lizards comprise a small group of elongate, snake-like lizards with long tails and minute limbs; a body form that allows them to move rapidly in long grass and other short vegetation. Why these two genera are excluded from the book is not explained and their omission certainly diminishes the value of *Girdled Lizards*, for these genera exhibit the most extreme morphological specialization and, perhaps, the most interesting biology. Admittedly there have been relatively few ecological studies on grass lizards, but flat lizards are relatively well known following the taxonomic studies of Don Broadley (1978) and the extensive studies of platysaurine ecology and behavior by Martin Whiting and his colleagues and students (see summaries and references in Whiting 2014). Much of this research focused on Broadley's Flat Lizard (*Platysaurus broadleyi*), a delightful species that lives in dense colonies and which "may be unique among lizards because males have an ultraviolet-reflective throat used to signal fighting ability" (Whiting et al. 2006).

Girdled Lizards starts with a Preface by Aaron M. Bauer, followed by a Natural History section. This includes a short Introduction of three pages, two comprising some of the earliest illustrations of cordylid lizards. After a six-page summary of recent developments in the systematics and evolution of the Cordylidae (reviewed by Ed Stanley on whose studies it is based) there are two pages of maps and a three-page tabulation of all cordylids by country. The latter illustrates the extraordinary diversity of the family in the subcontinent. A summary of the Great Describers lists the species named by the three leading historical herpetologists of southern Africa, namely Sir Andrew Smith (1797–1872, 8 species), Vivian FitzSimons (1901–1975, 11 taxa), and Donald Broadley (1932–present, 13 taxa). The wording of the text is ambiguous as it suggests that all the cordylids these authors described are still valid, whereas this is true only of Don Broadley. Both Smith and FitzSimons described taxa that are now placed in synonymy (Smith, three taxa: *Cordylus nebulosus* Smith 1838 = *Ouroboros cataphractus*; *Cordylus algoaensis* Smith 1838 = *Pseudocordylus microlepidotus fasciatus*; *Cordylus (Pseudocordylus) montanus* Smith 1838 = *Pseudocordylus microlepidotus microlepidotus*); FitzSimons, two taxa: *Zonurus laevigatus* FitzSimons 1933 = *Smaug depressus*; *Zonurus vandami perkoensis* FitzSimons, 1930 = *Smaug vandami*).

The Species Accounts, which form the heart of the book, present a comprehensive summary of the species previously assigned to the genera *Cordylus* and *Pseudocordylus*. Genera are arranged in alphabetical order, as are the species within them. There are useful keys to the new genera, as well as for species within each genus. A table lists old and new scientific names, as well as English and German common names. Each genus has a short introductory summary, followed by the detailed species accounts. These are arranged with common headings, i.e., Synonyms, Etymology, Type Locality, Type Publication, Type Deposition, Description, Colour, Size, Reproduction, and Distribution and Habitat. The latter sections are somewhat terse and do not summarize much of the detailed ecological studies that are available for many species. For over 20 years the Mouton group (Stellenbosch University) has published numerous ecological and behavioral studies on the *Cordylus cordylus-niger* complex, *Karusosaurus polyzonus*, and more recently *Ouroboros cataphractus* (e.g., Mouton and van Wyk 1997; Mouton 2011). Incorporation into the species accounts of more details from these studies would have given greater insight into the lives of these interesting groups. An additional perplexing oversight in these accounts

is the lack of a conservation section as many are threatened (e.g., Vulnerable: *Hemicordylus nebulosus* and *Smaug giganteus*; Near Threatened: *Cordylus inkeae*, *C. macropholis*, *C. niger*, *C. oelofseni*, *Pseudocordylus langi*, *P. spinosus*, and *P. transvaalensis*).

A comprehensive (40-page) section on Keeping and Breeding these fascinating lizards follows the Natural History section. It has lots of practical advice for captive husbandry and terrarium design, but would benefit from at least some suggestions for disease treatment and control. Admittedly these are technical and complex issues, but the reader would benefit from direction to at least relevant and accessible literature. Finally the book finishes with a one-page list of Museum Details, which lists 14 examples. These are somewhat arbitrary, as it is not obvious why in the USA the Centennial Museum and Gardens, University of Texas should be included in preference to the American Museum of Natural History, New York, while in South Africa, the KwaZulu Natal Museum, Pietermaritzburg is listed (when it has only a minor collection and no herpetologist) in preference to the National Museum, Bloemfontein (with a thriving Herpetology Department, and the fourth largest herpetological collection in the subcontinent!). More useful is Table 4, a synopsis of variation in scalation of all species discussed. A six-page Bibliography gives direction for the major literature on the topic.

With the current intensity of revisionary and phylogenetic studies on southern African reptiles it is little wonder that a number of taxonomic adjustments have occurred in the year subsequent to the release of *Girdled Lizards*. These include a revision of the *Smaug warreni* complex (Stanley and Bates 2014), with the elevation of the three subspecies of *S. warreni* to specific status; i.e., *S. warreni* (Boulenger, 1908), *S. barbertonensis* (Van Dam, 1921), and *S. depressus* (FitzSimons, 1930). A putative new species within *S. warreni* has been signaled (Stanley and Bates 2014), as have additional new lineages within the East African and Angolan *Cordylus* radiations (Branch, Bates, and Stanley, unpubl. obs.). A consequence of the reevaluation of *S. warreni* material previously assigned to other taxa within the complex is that some maps in the *Girdled Lizards* species accounts, and those in the recently launched *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland* (Bates et al. 2014), need readjustment. Stanley and Bates (2014) noted that early records from Blouberg/Makgabeng and farm New York (Jacobsen 1989), previously considered as isolated populations of *S. vandami*, are referable to *S. breyeri* despite confusing coloration in some cases. Sympatry between these two species, therefore, remains unconfirmed as their presently understood ranges do not overlap.

In summary, and despite its constrained coverage, *Girdled Lizards* is a very useful reference. It covers most cordylid genera and documents the diversity and distribution of some of Africa's most interesting and popular lizards. The author, his photographic collaborators, and the publishers are to be congratulated on the preparation of this useful, beautifully illustrated, and informative book.

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Amphibians and Reptiles of Guyana, South America: Illustrated Keys, Annotated Species Accounts, and a Biogeographic Synopsis

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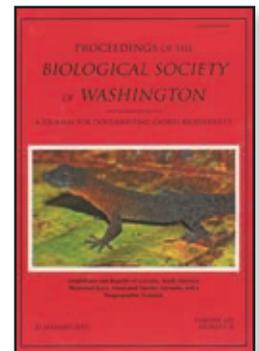
MacCulloch, and Amy Lathrop. 2013. Proceedings of the Biological Society of Washington 125(4):i–iii, 317–620. Paperback. US \$10.00. Also available from the Allen Press online bookstore as an e-book (EPUB or Kindle format), or from BioOne as a five-day access for US \$25.00.

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Guyana is one of these countries that some may find hard to locate on a map. “Is it in Africa?” or “is it an island?” are common questions when Guyana is mentioned in a casual conversation. Guyana is part of the Caribbean Community and Common Market (CARICOM), which makes things even more confusing because geographically the country is not related to the Caribbean. The Co-operative Republic of Guyana—not to be confounded

with French Guiana (northern South America) or Guinea (western Africa)—is a former British colony that gained its independence in 1966. The country lies along the Atlantic Coast of north-eastern South America, between Suriname to the east, Venezuela to the west, and Brazil to the south, and is part of the Guiana Shield biogeographical region. Guyana is fascinating in many ways, from its rich ethnic and cultural diversity (e.g., Levinson 1998) to its extensive pristine forest cover (ca. 18.39 million ha, thus about 85% of the country; Bholanath et al. 2012) and still—but for how long?—well-preserved biodiversity.

Prior to the publication of *Amphibians and Reptiles of Guyana* there was no book or field guide treating the herpetological diversity of Guyana as a whole. The very few existing compendia merely covered amphibians from restricted areas, e.g., Kaieteur National Park (Kok and Kalamandeen 2008) and Mount Ayan-ganna (MacCulloch and Lathrop 2009). The opus by Cole et al. is, therefore, a long-awaited handbook, not only for researchers working in Guyana, but also for naturalists interested in the region, as well as locals interested in their herpetofauna. Because the authors have all been working on the herpetofauna of Guyana for a long time (sometimes decades), we started reading *Amphibians and Reptiles of Guyana* with great expectations. We are pleased that they were satisfactorily met.

Although *Amphibians and Reptiles of Guyana* can be obtained as a paperback book, it actually is a long article published in Volume 125(4) of the *Proceedings of the Biological Society of Washington*. At the time it was downloaded by PJRK (16 February 2013), the PDF available from BioOne did not include the Contents (pages i–ii) or the Dedication (page iii). The lack of a table of contents in the PDF makes it less easy to use than the printed version. The one-page Dedication was downloadable for an additional \$10.00, which sounds quite prohibitive for a less than half-page paragraph. Guyana is the third poorest country of South America (after Bolivia and Paraguay), and \$25.00 could be crippling to most Guyanese who are interested in identifying their herpetofauna and want to learn more about it. We heard from the authors that making the PDF free was not possible for copyright reasons, but that several tens of hard copies were sent to Guyana by Charles J. Cole (hereafter CJC) in order to be distributed to students, scientists, and other interested people, including ones in other countries in South America (CJC, pers. comm. to PJRK, Feb. 2013).

Amphibians and Reptiles of Guyana is printed on high quality paper and should resist some mistreatments while being carried out into the field, except maybe for the binding, which is of lower quality. The book is written in very clear English and is readily accessible even to the uninitiated, maybe except for the Key section. The number of misspellings is extremely low for such a long text.

After a two-page abstract, the book offers a 14-page introductory section, which contains four main sections, as follows: Introduction, Methods, Abbreviations of Scientific Collections Used, and Identification of Specimens. These sections provide the reader with a good overview of what the book is offering, and how to use it properly.

The introductory section is followed by a 37-page section containing dichotomous identification keys. High-quality drawings, arranged in five figures (figs. 5–9), are used to highlight characters that could be difficult to visualize for some less experienced readers. The key was extensively used in the field and in the laboratory by several of PJRK's students, and these drawings proved to be useful for those not yet acquainted with all the

terms used. In addition to the drawings, some characters are briefly described within the key (e.g., apical pits, ventral scales). This proved to be useful most of the time, but we sometimes regretted the lack of precision in the description of some characters. Ventral scales for instance are described as “wide belly scales from neck to vent,” which in our opinion is too imprecise to allow unambiguous comparisons. It would have been better to provide a drawing showing exactly how ventral scales should be counted (e.g., following the method of Dowling 1951).

Some text is added to provide the reference(s) on which a specific identification key section is based, occasionally to provide additional helpful advice to the reader. The Key section proved to be helpful, we only found a few mistakes or weak points in that part of the book:

Key step 6 (p. 332): the possession of “conspicuous toad-like parotoid glands” leads to *Atelopus spumarius*, which lacks such glands.

Key step 21a (p. 335): the possession of a “translucent to transparent belly skin in adults” leads to Centrolenidae or Allohryniidae, while this character is also shared with *Hypsiboas cinerascens* (Spix, 1824) and *H. ornattissimus* (Noble, 1923), which are in Hylidae. An additional step should have been added here to avoid confusion.

Key step 19 (p. 343), step 3 (p. 346) and step 9 (p. 347): maximum body length of adult frogs. This is obviously a useless character when only a juvenile is at hand, and this proved to be a weak point of the key in the field when used by students.

Key step 40b (p. 345) mentions “maximum adult body length 37–50 mm.” However, to reach step 40, one has to go through step 38a (p. 345) that specifies “maximum adult body length 32–42 mm.”

The Key section is followed by the largest segment of the book, the species accounts (approximately 160 pages). Seven of the 324 amphibian and reptile species reported from the country were added after completion of the text and are listed in the Appendix 1 (p. 574). We found the way each species is presented very clear and the information provided highly valuable. Each taxon account begins with the scientific name of the species, the authorship, and the number of the plate(s) illustrating the species, when available. This is followed by a few paragraphs named as follows: Type Material (which we found very handy), Distribution (global), Vouchers for Guyana (again a very useful section referring to all Guyanese material identified in collections by the authors), Coloration in Life, and sometimes an additional paragraph named Comments where the authors provide some additional information, e.g., on the taxonomic status of the species, its ecology, or its peculiar morphology.

The exotic invasive *Trachemys scripta* (Thunberg in Schoepff, 1792) is not listed for the country although the species has been reported from Guyana by Lever (2006) (see comment in Meilink et al. 2013).

At least three taxonomic rearrangements appeared before the book was published and were not followed, nor commented upon, by Cole et al. (2013). We heard from the authors that these changes actually occurred after the manuscript was finalized and going to press (CJC, pers. comm. to PJRK, 17 Jan. 2015). These rearrangements are:

The erection of a new genus, *Amazophrynella* Fouquet, Recorder, Teixeira, Cassimiro, Amaro, Camacho, Damasceno, Carnaval, Moritz, and Rodrigues, 2012, for the Amazonian species formerly in *Dendrophryniscus* Jiménez de la Espada, 1870 by Fouquet et al. (2012a, b). *Dendrophryniscus minutus* (Melin, 1941) (p. 375)

should thus have been better treated as *Amazophrynella minuta* (Melin, 1941).

The revalidation by Hedges and Conn (2012) of the genus *Copeoglossum* Tschudi, 1845 and the family Mabuyidae Mittleman, 1952, in which *C. nigropunctatum* (Spix, 1825) is placed on the basis of morphological and molecular data. The species is still treated as *Mabuya nigropunctata* (Spix, 1825) in the family Scincidae Opper, 1811 in Cole et al. (2013: 463).

The synonymization of *Bothriopsis* Peters, 1861 with *Bothrops* Wagler, 1824 by Fenwick et al. (2009), who confirmed *Bothrops* to be paraphyletic with respect to the genus *Bothriopsis*. *Bothriopsis bilineatus* (Wied-Neuwied, 1821) and *B. taeniatus* (Wagler, 1824) (p. 519) should therefore be treated as *Bothrops bilineatus* and *Bothrops taeniatus*, respectively.

We detected a few taxonomic issues that are not mentioned in the species accounts (some for the same reason explained above):

Oreophrynella dendronastes Lathrop and MacCulloch, 2007 (p. 376) was shown by Kok et al. (2012, in their suppl. info.) to likely be a synonym of *O. macconnelli* Boulenger, 1900.

Stefania ackawaio MacCulloch and Lathrop, 2002 (p. 395) was shown by Kok et al. (2012, in their suppl. info.) to likely be a synonym of *S. roraimae* Duellman and Hoogmoed, 1984. Specimens of *S. ackawaio* have apparently been misidentified with *S. roraimae* and *S. woodleyi*, as shown in the phylogenetic tree provided in Kok et al. (2012, suppl. info.).

The mention of *Stefania scalae* Rivero, 1970 (p. 398) from Guyana is based on a single specimen collected on Mount Ayan-ganna at 1550 m elevation (ROM 39470, MacCulloch and Lathrop 2002). However, Kok et al. (2012, suppl. info.) showed that ROM 39470 was misidentified, and is actually *Stefania evansi* (Boulenger, 1904). Therefore, although *Stefania scalae* is likely present in western Guyana, its actual presence in the country still needs to be confirmed.

Hypsiboas sp. (Kok and Kalamandeen 2008: 176) is not treated in the book although it is a valid taxon, even if still undescribed. *Hypsiboas* sp. could have been treated in the species accounts as the authors did with *Microcaecilia* sp., and the species should be added to the country list.

Some taxonomic changes occurred after the book was published. These mostly concern:

Allobates spumaponens Kok and Ernst, 2007 (p. 370): the species was considered a synonym of *A. sumtuosus* (Morales, 2002) by Simões et al. (2013). *Allobates spumaponens* should therefore be removed from the list of species endemic to Guyana (p. 546).

Ceuthomantis Heinicke, Duellman, Trueb, Means, MacCulloch and Hedges, 2009 and Ceuthomantidae Heinicke, Duellman, Trueb, Means, MacCulloch and Hedges, 2009 (p. 385): Padial et al. (2014a) revised the systematics of terraranas and transferred *Ceuthomantis* to Pristimantinae Ohler and Dubois, 2012 (subfamily of Craugastoridae). Shortly thereafter, Padial et al. (2014b) realized that Ceuthomantidae actually has priority over Pristimantinae. Therefore, Ceuthomantinae is the correct subfamily name for *Ceuthomantis*.

Osteocephalus cabrerai (Cochran and Goin, 1970) (p. 410): the correct name for that species in Guyana is *O. helenae* (Ruthven, 1919) as demonstrated by Jungfer et al. (2013).

"*Hyla*" *warreni* Duellman and Hoogmoed, 1992 (p. 402): this taxon belongs to the genus *Tepuihyla* as shown in Kok et al. (2012, suppl. info.) and confirmed by Jungfer et al. (2013). The correct species name is therefore *Tepuihyla warreni* (Duellman and Hoogmoed, 1992).

Osteocephalus exophthalmus Smith and Noonan, 2001 (p. 410): this taxon belongs to the genus *Tepuihyla* as shown in Jungfer et al. (2013). The correct name for that species is thus *Tepuihyla exophthalma* (Smith and Noonan, 2001).

Osteocephalus phasmatus MacCulloch and Lathrop, 2005 (p. 412): this taxon belongs to the genus *Tepuihyla* as shown in Jungfer et al. (2013), who demonstrate that it is a synonym of *Tepuihyla exophthalma* (Smith and Noonan, 2001). *Osteocephalus phasmatus* should therefore be removed from the list of species endemic to Guyana (p. 546).

Scinax trilineatus (Hoogmoed and Gorzula, 1979) (p. 417): the species was synonymized with *S. fuscomarginatus* (Lutz, 1925) by Brusquetti et al. (2014).

Tepuihyla talbergae Duellman and Yoshpa, 1996 (p. 418): the species was synonymized with *T. rodriguezii* (Rivero, 1968) by Jungfer et al. (2013). *Tepuihyla talbergae* should therefore be removed from the list of species endemic to Guyana (p. 546).

Chiasmocleis jimi Caramaschi and Cruz, 2001 (p. 430): the species is considered a synonym of *C. hudsoni* Parker, 1940 by Peloso et al. (2014).

Caecilita iwokramaie Wake and Donnelly, 2010 (p. 438): the species, originally described as lungless, was later shown to have lungs, and the genus *Caecilita* was synonymized with *Microcaecilia* Taylor, 1968 by Wilkinson et al. (2014). The correct name for that species is thus *Microcaecilia iwokramaie* (Wake and Donnelly, 2010).

Riolama leucosticta (Boulenger, 1900) (p. 457): Cole et al. (2013) emphasized that the type locality of that species is in Venezuela, not in Guyana, and that voucher specimens having localities unambiguously located in Guyana are lacking. Kok (2015) formally reports the species from Guyana based on populations from Wei-Assipu-tepui and Maringma-tepui, Cuyuni-Mazaruni District.

Pseustes sulphureus (Wagler, 1824) (p. 506): the species was re-allocated to the genus *Spilotes* by Jadin et al. (2013). The correct name for that taxon is therefore *Spilotes sulphureus* (Wagler, 1824).

Rhinobothryum Wagler, 1830 (p. 506): the genus is considered monotypic by Cole et al. (2013), who state that *R. bovallii* (Anderson, 1916) is recognized as a junior synonym of *R. lentiginosum* (Scopoli, 1788) (erroneously reported as Scopoli, 1785 in Cole et al. 2013). However, this was in error as there is no such statement in the literature (CJC, pers. comm. to PJRK, 7 January 2014).

Microcaecilia savagei Wake and Donnelly, 2013 was recently described from Iwokrama, Guyana (Donnelly and Wake 2013), and should be added to the country list. It should also be added to the list of species endemic to Guyana (p. 546).

The authors frequently refer to McDiarmid et al. (1999) for snake taxonomy and/or geographic references, it should be noted that a more recent and comprehensive publication is now available (Wallach et al. 2014).

As the title suggests, the section following the species accounts mainly deals with biogeography. That Discussion section covers 17 pages. The authors mainly discuss sampling issues (most areas having been clearly undersampled) then compare sites within Guyana, based on elevation. Seven lowland sites are compared, as well as three isolated highland sites. Lowland versus isolated highland sites are compared as well. A list of endemic species is provided on pp. 546–547. That list actually represents the species having their type locality in Guyana; some of them have much wider distributions (e.g., *Allophryne ruthveni* Gage, 1926, *Leposoma guianense* Ruibal, 1952, and *Gonatodes annularis* Boulenger, 1887, to cite a few). After a few comments

about endangered species, the section ends with a useful Summary and Conclusions paragraph, stressing that much work still needs to be done in the area.

The next section, which follows the Acknowledgments (3 pages), the Literature Cited (22 pages), and the two appendices (5 pages), covers 41 pages and comprises the color plates. The book's Abstract (p. 317) and Plate Legends (p. 580) both mention that 62% of the amphibian and reptile species known to occur in Guyana are illustrated. However, we actually counted 192 species being illustrated, which corresponds to 59.3% of the total number of species. Photographs of 15 species (4.6% of the total number of species, 7.8% of the species illustrated) are from outside Guyana, in which case the exact locality is specified. This is important because some might later prove to be distinct species. Among the 229 color figures, about 1/4 are of obviously freshly euthanized animals, and 125 are taken on a white background (54.6%) instead of natural habitat. This is never problematic, and we found the vast majority of the photographs to be of very good to sufficient quality to help with species identification. However, the authors should have specified in the plate captions when the figure illustrates a juvenile specimen. Indeed, for some species there is an ontogenetic change in coloration (as mentioned in the species accounts) and the reader could be misled by the figure, e.g., *Chironius scurrulus* (Wagler, 1824), plate 30D, p. 610 (adult color pattern shown in Starace 2014); *Mastigodryas boddaerti* (Santzen, 1796), plate 32E, p. 612 (adult color pattern illustrated in Starace 2014); *Pseustes poecilonotus* (Günther, 1858), plate 34E, p. 614 (adult color pattern shown in Starace 2014). Mentioning the page number of the corresponding species account in the figure caption would have been helpful to readers who check the color photographs first.

In many cases we found the absence of any illustration, e.g., *Dendrobates tinctorius* (Cuvier, 1797), *Ceratophrys cornuta* (Linnaeus, 1758), *Clelia clelia* (Daudin, 1803), *Siphlophis cervinus* (Laurenti, 1768), or the lack of illustration of a specimen of Guyanese origin, surprising because either it seems very unlikely that such a photograph was not available, and some of these species are already illustrated by Guyanese specimens in the literature, e.g., *Anomaloglossus praderioi* (La Marca, 1998) (not 1997 as stated by the authors), *Hyalinobatrachium taylori* (Goin, 1968), *Scinax boesemanni* (Goin, 1966) and *Oxyrhopus occipitalis* (Wagler, 1824) to cite just a few (in Kok 2010; Kok and Castroviejo-Fisher 2008; Kok and Kalamandeen 2008; MacCulloch et al. 2009, respectively). It should, therefore, have been possible to provide one. But these are rather minor criticisms, and maybe the authors were limited by space. The caption of *Phimophis guianensis* does not mention any locality; it should be Dubulay (DUB) according to the text.

To conclude, we found *Amphibians and Reptiles of Guyana* to be very well written, extremely useful, nicely illustrated, and we highly recommend it to anyone interested in the Neotropical herpetofauna.

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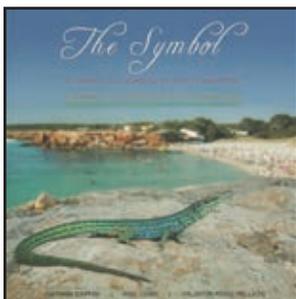
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The Symbol: Wall Lizards of Ibiza and Formentera

Nathan Dappen, Neil Losin, and Valentin Pérez-Mellado. 2013. Day's Edge Productions (www.daysedgeproductions.com/the_symbol/). Softcover. 128 pp. US \$19.99.



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The Symbol is a small, four-language book (Spanish, English, Italian, German) that sings the praises of the Ibizan Wall Lizard (*Podarcis pityusensis*). While perhaps not a household

name in America, this attractive lacertid is indeed emblematic of the islands of the Pityusic Archipelago (in the western Balearic Islands of Spain), of which Ibiza is the largest and most well-known. In addition to being conspicuous throughout the archipelago, it is the only native, non-volant vertebrate in the archipelago.

The book is beautifully illustrated by many images of this photogenic lizard and its equally attractive habitat. That the lizard is indeed a symbol of the islands is attested by photos of many lizard logos on everything from tee-shirts to shops to tattoos (although many seem to depict geckos!). In addition to nice portrait shots, there are wonderful images of male/male combat, copulation, as well as feeding (on everything, including plant material).

The text is quite short, as it needs to be given that it must be repeated in four languages (in four columns spread across facing pages). Some basic information about lizards in general is provided, but the majority of the book is devoted to *P. pityusensis*. The information is mostly relatively elementary and is organized by questions, the first of which is “What is the current classification of the species?” The geological backdrop to the evolution of the lizard is provided as is basic taxonomic information. Although subspecies are not widely accepted in North American herpetology today, they remain in use in Europe and are a legacy of both different ways of thinking about what a species is and of the in-depth study of a relatively limited fauna. The Pityusic wall lizard has had 45 subspecific forms named—the majority of which were described by German herpetologists, 23 of which are now generally recognized and listed in this book. The occurrence of these on the various islands in the group, most of which are tiny and cluster around Ibiza or the smaller Formentera, is shown on a map, although the island names are not given. At least five of the forms are illustrated, including the especially colorful lizards of Es Vedrà, with bright blue flanks and orange-yellow backs. In some cases the lizards are named, but in others one must guess or at least consult a map to see which species are on which island. The book is clearly not meant for systematists, but more for those wishing to appreciate the lizard they saw while living it up during Ibiza's raucous high season.

Other sections of the book treat thermoregulation, habitat, seasonal activity, communication, aggression, and reproduction. Some useful information is provided, but some questions, like “do these lizards have multiple clutches per year?” that might occur to readers are not addressed. There is a moderately extensive discussion of the role of color in sexual selection and the ontogeny of color, as one would expect with such extravagantly hued lizards. The book advocates for the conservation of these lizards, which are considered vulnerable. This might seem to be contradicted by the statement that the lizards occur at densities of thousands per hectare. However, the overall small area occupied by the species, and especially by the subspecies, if these are treated as separate conservation units, is the explanation for their conservation status.

In general the information provided is accurate and clearly presented. However, it is stated that male lizards (in general) are almost always larger than females (p. 28), whereas Fitch (1981) found that females were as large or larger than males in 36% of the 408 lizard taxa he considered. My only other minor quibbles are that the term “hemipene” is used in place of hemipenis (p. 28) and that the date of description of the focal species is variously given as 1883 (p. 46) and 1884 (p. 48)—it is actually 1883.

The book closes with a two-page spread of short biographies

of the three authors. The first two authors, who also took the stunning photos, may not be familiar to herpetologists, but Valentin Perez-Mellado will be familiar to those who know the Spanish insular herpetofauna. The book was financed through a Kickstarter campaign. Its success suggests that the authors' love for *the symbol* is widely shared. There is a downside to this type of support for a book, however, at least for bibliographers: the book has no stated publisher, city of publication, and no ISBN number. Neither is a date of publication printed in the book (although it is 2013).

A trained herpetologist will not learn much new from the book (for the most up-to-date summary of more technical information about the Ibizan Wall Lizard see Salvador 2014), but an amateur naturalist might and anyone who picks it up will gain an appreciation for the diversity in one species and will wonder about how and why intraspecific diversity is so great in this species.

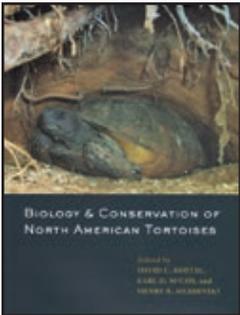
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Biology and Conservation of North American Tortoises

edited by David C. Rostal, Earl D. McCoy, and Henry R. Mushinsky.
2014. Johns Hopkins University Press, Baltimore, Maryland (www.press.jhu.edu). x + 190 pp. Hardcover. US \$69.95. ISBN 978-1-4214-1377-8.



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The charismatic North American tortoises hold a special place in our culture and natural history. Despite the perseverance of these tortoises over millions of years, biologists now question their ability to persist into the future. In light of documented declines, habitat loss, and numerous threats to tortoise populations, the editors gathered a diverse group of researchers to review what we have learned about this group after decades of study, to summarize gaps in the literature, and to reflect on how we may use the current state of knowledge to conserve these fascinating species. Initially intended as a focused review of the two most well-studied species in the genus *Gopherus*, *G. agassizii* (Mohave Desert Tortoise) and *G. polyphemus* (Gopher Tortoise), the book developed into a comprehensive treatment

of the entire genus. The editors offer the work as a resource to professional biologists and agencies working with North American tortoises as well as a teaching aid, hobbyist's reference, and casual read for nature-lovers—although we presume that the former group is more likely to benefit than the latter. Although the book's size appears modest, the content delivers an in-depth look at the five recognized tortoise species.

The book comprises eighteen chapters. Although not formally structured in this manner, chapter topics fall within broad categories of evolution, physiology, and health (chapters 1–8), natural history and population ecology (chapters 9–16), and human dimensions and conservation (chapters 17–18). Authors represent numerous universities, state and federal agencies, and research organizations, and include many long-standing experts in this field of research. Within each chapter, authors address a particular topic for all five *Gopherus* species but vary in their approach and style. All chapters begin with a brief introduction of the topic and its relevance to tortoise biology. Then, authors review relevant concepts and data from published articles, white papers, conference proceedings, unpublished studies, and personal observations. While many chapters take stock of the current state of research, some chapters present new findings from novel data compilations and analyses (e.g., Chapter 12, Social Behaviors of North American Tortoises and Chapter 13, Nesting and Reproductive Output among North American Tortoises). Throughout the text, authors often compare traits across species, describe and compare techniques and experimental approaches, examine evidence for ecological theory within existing data, and suggest new avenues for research to advance our understanding of the genus. Illustrative materials include black-and-white photographs, diagrams, data plots and tables, and sample data sheets.

The editors and authors have succeeded in compiling an impressive collection of literature on a group that can be frustrating to study, as some data exist in hard-to-access sources or are entirely unpublished. This compilation, combined with the commentary on the current state of knowledge and identification of further avenues of research, make this text most useful to professionals working with this genus or with related species. Graduate students working with *Gopherus* should also take note: the book not only provides valuable background information about each species, but many chapters review common techniques used in tortoise research. Readers with a more casual interest in North American tortoises may find the *Gopherus* descriptions in “Turtles of the United States and Canada” (Ernst and Lovich 2009) more approachable; however, from Chapter 9 and onwards, this book becomes more accessible to those not already familiar with scientific terminology or specific sub-disciplines.

Many aspects of tortoise biology apply to numerous ecological systems, and interesting biological concepts throughout the book may appeal to a wider professional audience. The extant *Gopherus* species span varied habitats that relate to interesting evolutionary relationships, behavioral and physiological adaptations, and life history trade-offs. Certain chapters reflect the trial, error, and advances made over decades of management that may inform other managers facing similar challenges: the difficulties in documenting trends in cryptic or long-lived species (Chapter 14, Abundance of North American Tortoises), the application of population genetics to species management (Chapter 15, Population and Conservation Genetics of North American Tortoises), and the complexity of threats that deter species and habitat conservation (Chapter 18, Threats and Conservation Needs of North

American Tortoises).

The book presents some challenges, and improving a few key elements would have contributed to its overall cohesiveness and use. Some chapters are closely related and may have benefited from additional chapter structuring (similar to those suggested above), with section introductions tying the elements together. Without this structuring, the book begins abruptly and seems to assume some prior knowledge of *Gopherus*, diving headfirst into the genus with little context or placement in the higher taxa. This dynamic is apparent throughout the book, as chapters vary widely in the amount of background knowledge provided. At times, this variation can hinder how the information is conveyed.

While many chapters provide useful summary tables that efficiently review the breadth of information known about the tortoise species (e.g., review of home range data in Chapter 11), many chapters could be improved by effective use of figures and photographs. Generally, the plots and diagrams are clear and valuable visualizations of the text; however, in a few cases, figures are difficult to interpret or are ill-suited for black-and-white print. Similarly, the informative text of the book varies in its approachability. At times exhaustive lists of the literature available on a topic detract from the general message of the section. Authors clearly faced a trade-off—sacrifice clarity and interpretation of material for thorough lists of facts. Perhaps additional table presentations of references or data numbered within the text would allow sections to read more smoothly but still allow access to detailed information when needed.

Lastly, we believe there is disproportionate emphasis on the organismal biology of *Gopherus*, which comes at the expense of discussing their context within the larger ecosystem. For instance, ecological roles could be further explored. In particular,

relationships between tortoises and other vertebrate species in the environment are noticeably lacking. This shortcoming is odd considering some tortoise species act as ecosystem engineers. Conservation issues and initiatives could also be described in more depth. There is little discussion about the unique problems captive tortoise populations pose to conservation or the relative success of management and conservation measures taken to ensure species persistence.

While this tome may not be as approachable to a wide audience as the editors desired it to be, it is a useful reference that many researchers and professionals will want to add to their book shelf. *The Biology and Conservation of North American Tortoises* gathers references and data from a variety of sources to summarize our knowledge of these long-lived reptiles. This mini-library of tortoise resources will benefit professionals and managers working with the genus and provide students with a crash course in tortoise research. The unique biology of North American tortoises presented in this text will no doubt inspire professionals to investigate broader theories within this system and promote conservation of our disappearing species.

Acknowledgments.—CMA wishes to disclose professional affiliation with several chapter authors within the U.S. Geological Survey. Her contributions to this review focused on the use of the book as a whole and chapters by unassociated authors.

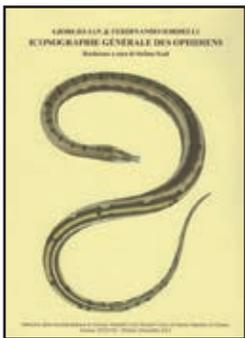
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Iconographie Générale des Ophidiens by Giorgio Jan and Ferdinando Sordelli, riedizione a cura di Stefano Scali. 2012.

Memorie della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano (<http://scienze naturali.org/>), Volume XXXVIII. 12 + [356] pp. Hardcover. €50,00 (approx. US \$56.00 plus postage). ISSN 0376-2726.



This is a reprint edition of the classic snake work by Jan and Sordelli known simply as the *Iconographie*. Originally published between 1860 and 1881 it features 300 superb black-and-white plates including 8430 lithographic illustrations. The work was issued in 50 livraisons of six plates each, and attempted to depict all the snakes of the world then known, many for the first time. Most plates show the scalation of the anterior and posterior parts of the body in detail with smaller inset views of the head scales, body cross sections, and occasionally other features. The last five plates depict skulls in various views. The majority of plates illustrate numerous species, but Jan chose as his first plate one that shows only the striking *Erpeton*

tentaculum. A colored version of this was used as a promotion for subscriptions to the work and in this edition it is reproduced on the dustjacket. The text of the *Iconographie* is limited to the contents pages, which list the species, their geographic origin and the identity of the collections that provided the specimens illustrated. The work was complemented by a number of monographic works by Jan (not reproduced in this edition), and more were planned but never published.

This edition, edited by Stefano Scali, herpetological curator of the Museo Civico di Storia Naturale di Milano, includes a brief bilingual (Italian/English) introduction of eight pages about Jan, the history of the collection, and the *Iconographie* itself. The introductory material also includes a brief history of the Milan Museum after Jan. Unfortunately, much of the collection was destroyed by incendiary bombs in 1943. The original *Iconographie* is one of the most valuable books in herpetology and even the previous facsimile of the work, published by J. Cramer, Wheldon and Wesley, and Hafner Publishing in 1961 has become uncommon and typically fetches many hundreds of dollars when copies become available. In this edition, published as a special issue of the memoirs of the Milan Museum, the plates are reproduced at a slightly reduced size, but the fine details remain visible. The *Iconographie* remains an important work of both artistic and scientific achievement and now that it is once again available, should be on every herpetologist's shelf.