marine snakes rely heavily on freshwater to maintain proper water balance; this dependence on freshwater could be responsible for their tropical distribution (i.e., where rainfall is the greatest) and raises concerns about how these marine snakes will respond to predicted changes in tropical precipitation patterns due to climate change.

In summary, this book provides a wealth of information and is a useful resource for those interested in understanding some (but not all) basic methodologies for undertaking questions pertaining to reptile ecology, physiology, and behavior. Although I found the atypical organization of this book a bit distracting (e.g., because it was arranged by biome, some conceptual themes of certain chapters were out of place), this should not be a problem if readers pick and choose certain chapters of interest, rather than read the book from cover to cover. In addition, the major groups of reptiles covered in this book received different levels of attention, with 15 chapters on squamates (nine on lizards and six on snakes), and only three chapters devoted to turtles and just one on crocodylians; the remaining five chapters covered general aspects of reptile research. This unbalanced taxonomic coverage may reflect the relative number of species in each group, but certainly does not reflect their ecological importance or their role in biological research. Unfortunately, I noticed several minor typographical errors throughout the book and at least one figure was missing (or perhaps the figure citation was incorrect; reference to Fig. 3, p. 390). Plus, the price of this book is a bit high, particularly for students. Nevertheless, this book covers a broad range of conceptual topics, is full of attractive photographs of study animals and habitats, and contains numerous figures and tables that are extremely informative. Overall, this book succeeds in demonstrating the creative methods that reptile biologists employ in their research, and effectively illustrates the role that reptiles have played in our general understanding of basic conceptual principles in biology.

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Daniel A. Warner, *Department of Biology, University of Alabama at Birmingham, Birmingham, Alabama 35294; E-mail: dawarner@uab.edu*.

The Snakes of the Lesser Sunda Islands (Nusa Tenggara), Indonesia—A Field Guide to the Terrestrial and Semi-aquatic Snakes with Identification Key. R. de Lang. 2011. Edition Chimaira, ISBN 9783899734805. 359 p. €49.80 (approximately $69.40) (hardcover).—The Lesser Sunda Islands, or Nusa Tenggara, comprise a chain of roughly 20 islands, ranging from 20–15,300 km^2 in land area, in the southeastern extremes of Southeast Asia, approximately 700 km north of Western Australia. Most of the islands within this system are part of Indonesia, and generally speaking, are in need of modern studies of the regional flora and fauna. Although historical summaries of some of the herpetofauna of the region exist, until recently, little published research has surfaced on this unique island chain. Fortunately, this book, accompanied by moderate levels of rejuvenated and successful research efforts (Kaiser et al., 2011, 2013; O'Shea et al., 2012; Sanchez et al., 2012; Das and van Dijk, 2013; O'Shea and Kaiser, 2013), have resulted in a nascent body of literature on the herpetofauna of Nusa Tenggara.

A preface by Marinus S. Hoogmoed provides a nice introduction to historical investigations of the amphibians and reptiles in the region, highlighting the need for a more modern understanding of reptile diversity in the Lesser Sunda Islands. Furthermore, it articulates the need for both research-driven as well as more generalized literature on this poorly understood snake fauna. Importantly, Hoogmoed clarifies the breadth of this work as a very professional yet general resource, and, given this understanding, correctly identifies this as one of the work's strengths: to excite the public and research community alike about the unique communities of snakes in a chain of islands with such a rich biogeographic history and historical importance.

The book has a number of introductory chapters to familiarize readers with the region, including overviews of the geological history, landscape and vegetation, climate, and fauna. Although the book's descriptions of regional climate patterns approach being more thorough, many of these early sections provide only abbreviated summaries, with few citations to published work. While these sections present easily accessible information that likely will be of considerable interest to the public, enthusiasts, and government and wildlife offices, interested researchers may require supplemental sources to fully study these topics as they relate to the Lesser Sunda Islands. Additionally, de Lang introduces readers to the field of biogeography, providing brief introductions to a variety of concepts dealing with island systems, from species richness to MacArthur and Wilson's (1967) equilibrium theory of island biogeography, including the historical significance of the region as it relates to famous faunal turnover zones (e.g., Wallace's and Weber's lines). These descriptions are excellent given the generalized scope of the introductory sections. Thematically, much of this material is presented in a simplified manner, which seems to fit the general summaries provided in preceding sections. Several of the focused summaries dealing with the theories of island biogeography and patterns of species diversity on islands may be less accessible to readers lacking a more comprehensive understanding of these subjects. The introduction ends with a summary of issues related to nature conservation across Indonesia, providing readers with an excellent introductory overview of these regional issues.

A methodology section details how the taxonomic accounts and other sections of the book were constructed. Species accounts are arranged by Linnaean rank and alphabetical order within families. Prior to the accounts, de Lang provides a checklist and identification key for the snakes of the Lesser Sunda Islands in both English and Bahasa Indonesia. Overall, the book's materials and methods section does a great job of preparing readers for interpreting subsequent species accounts, as well as having a better understanding of characters involved in diagnosing species in the wild. In some ways, de Lang has provided a

more comprehensive approach to character description and summary than many related works by experts have been able to achieve. One particular component of the work, which adds significantly to its content, is the inclusion of line drawings to assist readers in understanding key morphological characters discussed in the book. These include numerous reproductions of original scientific illustrations to aid readers in understanding body-scale patterns and scale terminology. These range from head illustrations for snakes in the families Colubridae (fig. 6), Pareatidae (fig. 118), Typhlopidae (fig. 165), and Viperidae (fig. 195), to ventral and dorsal scales on the body (figs. 8, 9) and tail (figs. 7, 165). All illustrations appear to have been reproduced from Stoel (1982); however, this is not acknowledged in the Materials and Methods or Acknowledgment sections.

Unfortunately, the inclusion of these helpful illustrations does not prevent the methods section from falling short of clearly articulating the author's means of arriving at some diagnostic character states. For example, it is not clear how he measured dorsal scale rows. While de Lang presents an excellent summary and illustration of the three common ways in which snake body scales are counted, it is not clear which was/were used in this volume. Many of the shortcomings of the book's methodological descriptions are a result of insufficient definitions for the character states measured and used in the species accounts. That said, I would like to stress that given the author's background as an amateur herpetologist, these shortcomings do not detract from de Lang's success in providing a reasonable level of methodological detail for this work to be an excellent reference for a broad audience.

In general, the accounts provide a robust overview of each of the 36 focal species. Each account references the authoritative publication and provides information on distribution, habitat, body characteristics, identifying characters, biology, and conservation status. Selected literature references are provided for all accounts and additional taxonomic notes and information on venom toxicity are provided for some. Descriptions of body characteristics are divided into a set of categories: size, head morphology, body morphology, tail morphology, and color pattern. Missing in species accounts are robust diagnosis sections, information about etymology, International Union for Conservation of Nature (IUCN) criteria-based conservation assessments, and references to vouchered museum specimens. Although some diagnostic information is available among sections of each account, such information could have been presented in a more easily accessible and standardized manner within each account. Additionally, much of the diagnostic references and information is focused solely on the identification of snakes within the Lesser Sunda Islands, which limits the utility of species comparisons with other Indonesian and Southeast Asian populations and congeners. Summaries of species-specific conservation status should be well received and provide useful information to readers and conservation specialists looking for this general information; however, the impact of this work on applied conservation efforts for this poorly understood herpetofauna would have been greatly improved if the author evaluated each species against the IUCN criteria for classification. Although not uncommon in similar field guides, de Lang provides no reference to vouchered collections housed in natural history museums. Although large collections may not exist in publicly available repositories, reference to vouchered material would have improved the utility of the species accounts (i.e., collections at the National Museum of Natural History and the South Australian Museum; Kaiser et al., 2011).

Although a few errors in format, spelling, and grammar exist, de Lang has done an excellent job of keeping these to a minimum. A surge of research focused on Southeast Asian amphibians and reptiles has taken place during the last two decades, and the incorporation of genetic data into studies of biodiversity has resulted in on-going changes to taxonomy within the region. Many of these changes result in greater taxonomic stability; however, it can also make it difficult for the public, enthusiasts, students, government agencies, and the research community alike to stay current with the nomenclature. Fortunately, only two species in this work have experienced such a change: *Broghammerus reticulatus* and *B. timoriensis* have been placed into the newly described genus *Malayopython* (Reynolds et al., 2014).

Without a doubt, one of the greatest aspects of this work is the inclusion of an incredible number of high-quality photographs of live specimens and regional microhabitats. This includes beautiful close-up photographs of *Cryptelytrops insularis*, *Gonyosoma oxycephalum*, *Daboia siamensis*, and *Malayopython* (=*Broghammerus*) *timoriensis*. For several species, de Lang includes a useful suite of photographs that highlight regional and more localized morphological variation in color patterns (e.g., *Cryptelytrops insularis*). Additionally, the author includes a number of pictures summarizing the variation in general habitat types found across the island system.

With the increasing availability of high-resolution topographic maps, it is disappointing that more detailed sampling and species distribution information is not available in this book. Distribution information of island-specific snake records and generalized species-specific distributions are summarized near the end of the book in the following formats: (1) a series of black-and-white, numerically labeled dot maps showing the distribution of snake records on each island; (2) a series of black-and-white, non-labeled but shaded or dotted range maps for each focal species; and (3) two tables summarizing island-specific georeferenced localities for snake observations and the presence or absence of species on those islands, respectively. Unfortunately, these resources were not linked in an easily accessible manner, and although readers might be able to access generalized island records for species occurrences, species-specific locality information is not provided. The addition of this information, and reformatting these sections, would have greatly improved the utility of the distribution information.

Throughout the last sections of the book, de Lang summarizes doubtful species records and reviews useful information concerning snakebites and envenomation. The book provides a substantial source of literature references (338 in total); however, a more comprehensive approach to incorporating relevant regional literature would have improved its utility. For example, a more in-depth comparison of reptile diversity in other regions of Indonesia, not to mention the many distinct faunal regions of Southeast Asia surrounding the Lesser Sunda Islands, would have greatly added to the breadth of this work. Regardless, de Lang provides professional, focused species accounts, and with 297 figures, the book represents a wonderfully illustrated guide to the snakes occurring in this island chain.

Although the book falls short of a comprehensive evaluation of the snakes of the Lesser Sunda Islands, it does provide an excellent reference tool and baseline summary of this poorly understood fauna. I am confident that this work will be of great interest to tourists, wildlife units of the government, students, and researchers alike, who will find value in the data, photographs, and background information presented on the focal species. I have no doubt that this book will immediately become a widely used field guide,

reference tool, and cited work, as the Indonesian herpetofauna remains one of the more poorly understood communities of amphibians and reptiles on our planet.

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Cameron D. Siler, *Sam Noble Oklahoma Museum of Natural History and Department of Biology, The University of Oklahoma, Norman, Oklahoma 73072-7029; E-mail: camsiler@ou.edu.*

The Map Turtle and Sawback Atlas: Ecology, Evolution, Distribution, and Conservation. P. V. Lindeman. 2013. Oklahoma University Press, ISBN 978080614406. 460 p. $45.00 (hardcover).—*Graptemys* (map turtles and sawbacks) is the most diverse genus of turtles in North America and ranks third worldwide (Fritz and Havaš, 2007). However, there is relatively little known about this genus compared to other chelonian groups (e.g., *Gopherus*) or even some species (i.e., *Trachemys scripta*; Lovich and Ennen, 2013). For almost two decades, Peter Lindeman has worked to fill informational gaps, which has brought *Graptemys* to the forefront with his studies of their ecology, evolution, and conservation. Along with the data he has collected from across the country, Lindeman has spent more than a decade collecting and summarizing seemingly all known data on *Graptemys* into this volume.

The *Atlas* is a treatise on all things *Graptemys* and the first of its kind for this interesting group of turtles. It seems as though the author visited every river or bridge crossing throughout the range of the genus, and he put his hands on every available museum specimen. Further, this book is full of personal data and observations, which also indicate that Lindeman has ''put in his time'' observing all *Graptemys* in their natural habitat. The writing style in many of the early chapters has a personal touch that is reminiscent of the old Archie Carr turtle guides (e.g., Carr, 1952). Lindeman also weaves together anecdotes and recollections of former researchers of *Graptemys*, as well as river locals, indicating the depth of his investigation for this book. The photography offers a unique perspective because all images are of individuals in natural environments and conditions. By contrast, most turtle guides have posed animals with perfectly groomed shells; this book sets a realistic precedent for future volumes.

One of the more impressive chapters is Chapter 2, ''History of Studies of Map Turtle and Sawback Biology.'' Lindeman traces the original steps of some of the earliest *Graptemys* researchers, including Charles Alexandre Lesueur, who described the first member of the genus (*G. geographica*, Lesueur, 1817), to George Baur's taxonomic work in the late 1800s. For the latter, the author includes original correspondence and drawings related to several species of *Graptemys*. This sort of detail is often omitted from similar taxonomically focused guides, but provides an interesting historical perspective. Lindeman rightly focuses a good portion of this chapter on studies conducted by Fred Cagle and the Tulane field crew from the 1940s and 50s. Cagle's work was instrumental in the ''rediscovery'' of *Graptemys* and initiated the contemporary ecological and taxonomic work on the group. Cagle set the stage for a number of researchers who followed him, including Dick Vogt and Jim Bull, both of whom were instrumental in the study of *Graptemys* and resolution of temperature-dependent sex determination in turtles. Lindeman then goes on to describe his own studies and the rationale behind many of his research topics. For example, he saw that *G. versa* had the shortest species account in Ernst et al. (1994), so he decided to study it. The old photographs and stories that accompany the text in this chapter are also a valuable addition.

For Chapter 3, Evolutionary History, Lindeman provides a detailed account of nearly every taxonomic change and hypothesis proposed, accepted, or rejected for the genus and species within. He presents multiple hypotheses concerning inter- and intrageneric relationships, as well as the techniques used to generate and analyze such data. The information in this chapter is probably too technical for most readers, but a solid entry for trained scientists and taxonomists.

Chapter 4 (Ecology) provides comprehensive information on basic ecological and natural history information on species of *Graptemys*. Lindeman presents information on similar topics for multiple species rather than including such information in each species account (e.g., movements for *G. geographica* and *G. flavimaculata* are described together). I personally like this arrangement, which makes for easy comparisons across species, but it is very different from comparable volumes (e.g., Ernst and Lovich, 2009). Lindeman also has extensive sections dedicated to diet/feeding ecology and growth/body size, both of which the author has extensive research experience.

In the middle of the book (and within the Ecology section) are the color plates and distribution maps for each species. The species are organized based upon a ''concensus phylogeny'' with *G. geographica* presented first (basal species), followed by the megacephalic members of the *Graptemys pulchra* clade, the mesocephalic *Graptemys*, and