

BOOK REVIEWS

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Revisión Taxonómica de la Familia Centrolenidae (Amphibia; Anura) de Venezuela, by J. Celsa Señaris and José Ayarzagüena. 2005. BIOSFERA, Publicaciones del Comité Español del programa Hombre y Biosfera-Red IberoMaB de la UNESCO, Ministerio de Medio Ambiente, Plaza San Juan de la Cruz s/n, 2ª planta, E-28071 Madrid, Spain. Num 7. vii + 337 pp. Softcover. ISSN 1138-8153.

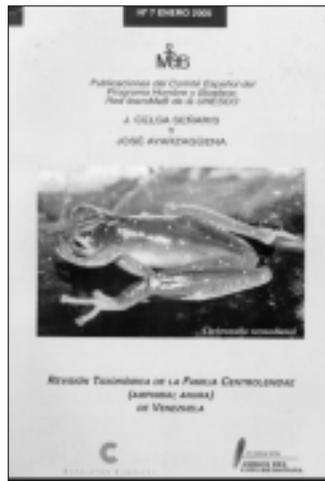
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In recent decades, taxonomic knowledge of Neotropical amphibians has increased rapidly and significantly. In the face of destruction of natural habitats, there is a great need to understand the biota that surrounds us. The availability of new technologies and the increasing number of students of herpetology in the tropics have made advances in this field possible. Significantly, the most diverse countries in the world in amphibian diversity (all in the Neotropics) have taken a direct part in reviewing the most problematic groups of amphibians.

Glass frogs of the family Centrolenidae are among those groups of anurans that few people have dared to tackle. Others are *Leptodactylus*, *Eleutherodactylus*, and *Elachistocleis*, just to mention a few. Prior to the ground-breaking work of Lynch and Ruíz-Carranza in Colombia (Ruíz-Carranza and Lynch 1991 and subsequent papers), the family Centrolenidae was known poorly, chiefly through species descriptions (e.g., Goin 1963; Rivero 1968, 1986 for Venezuela alone), and a more comprehensive understanding of the group was lacking. Nonetheless, much additional study is needed, and this new book on glass frogs has appeared at an opportune time. It presents the results of more than 15 years of observations by José Ayarzagüena and Celsa Señaris in Venezuela (Ayarzagüena 1992; Señaris and Ayarzagüena 1993, 2001; Ayarzagüena and Señaris 1996; Señaris 1999; Duellman and Señaris 2003) and is mainly derived from the Ph.D. thesis of the latter author.

The book starts with acknowledgements and abstracts in Spanish and English. A general introduction to the Amphibia of Venezuela follows. The introduction is completed by an historical resumé of studies of the Centrolenidae throughout their range, a review of supraspecific classifications, and a subchapter about the family Centrolenidae in its Venezuelan context.

The materials and methods, covering both field and lab work, is



comprehensive—detailing all measurements taken (morphology and morphometry), osteological methods, the study of tadpoles, and call analysis. The subsequent section is about the study area, which includes most of the Venezuelan bioregions important to glass frogs. It covers the geology and geomorphology of the country, hydrography, and physiographic and phytogeographic regions of Venezuela. Localities representative of different bioregions are described in detail and zoogeographic patterns of the Venezuelan herpetofauna are presented. A separate chapter outlines the 16 taxonomic characters employed in the study.

The longest part of the book provides a detailed account of each of the 23 species known for the country: five *Centrolene*, seven *Cochranella*, and 11 *Hyalinobatrachium*. The only species for which the account is rather sketchy is *Centrolene lema* Duellman and Señaris, 2003, which was not yet described formally when the text was initially sent to the publisher. Each account provides a complete synonymy, diagnosis, description (usually accompanied by drawings of the dorsal and lateral views of the head, and ventral views of hands, feet, and nuptial excrescences), coloration in life and in alcohol, osteology (usually with details of the skull, vertebral column, hand, humerus and spines), natural history, call description (with sonograms and oscilograms of almost all species), and description of the tadpole (also with a good schematic drawing); distribution, and comments or remarks. Accompanying point locality maps illustrate known Venezuelan localities. Following the accounts, the authors provide a dichotomous key to all species of Venezuelan glass frogs. This is quite simple to follow, except that its use requires males of *Centrolene* or *Cochranella*.

A long discussion follows, in which the authors comment on their findings and erect two new groups, one for Guayanan *Centrolene* (the *C. gorzulai* group) and another for Guayanan + Paria *Cochranella* (the *C. oyampiensis* group). In a biogeographic section, geographic, altitudinal, latitudinal, and spatial distribution are analyzed, centrolenid diversity per country is summarized, and instances of sympatry reviewed. “Conclusions and recommendations” summarizes the most significant findings and highlights the need for further research on glass frogs. A bibliography with 194 references ends the text section of the book.

Section IX (wrongly indicated as VII) is a set of color plates, but only ten of the species are illustrated. It would have been useful to see all of the animals treated in the book in color, however, it is still an important contribution to provide the first color photos of selected species with restricted distributions, such as *Cochranella castroviejoi*, *C. helenae*, *C. revocata*, *C. vozmedianoi*, *Hyalinobatrachium antisthenesi*, *H. durantei*, *H. mondolfii*, and *H. taylori* (non-conspecific with *H. taylori* as treated by Lescure and Marty 2000, fide C. Señaris and S. Castroviejo, pers. comm.).

Finally, there are four annexes: a current checklist of all centrolenids, with summary distributional statements and comments about phenetic grouping; material examined; and a principal components analysis of the Venezuelan centrolenids.

There are a few typographic errors and some editorial inconsistencies. For example, the pagination indicated in the table of contents does not match the actual text and on page 249 the legend for Figure 170 repeats that for Figure 169, when it should say something like: “Distribución altitudinal de las diferentes especies venezolanas”... (Altitudinal distribution of different Venezuelan species...). However, some other issues are relevant to the use of

the volume. First, it appears to be difficult to acquire the book; indeed, I have not been able to locate it for sale in Venezuela. There is no indication of price and the main source of the book in Venezuela is directly from the first author. The problem must be the same in many other countries in which the book is likely to be of particular value. Finally, the book is written in Spanish, which is obviously good for all Spanish speakers, but perhaps makes it less accessible outside of Latin America. On the other hand, all herpetologists interested in Neotropical amphibians and reptiles really must have at least a reading knowledge of Spanish, and this book offers such people great opportunity to practice! Any minor criticisms aside, I must congratulate the authors for such an impressive effort, which undoubtedly contributes significantly to our understanding of this family of anurans.

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Snakes of New England: Photographic and Natural History Study, by Linda Krulikowski. 2004. LuvLife Publishing, 69 Shore Drive, Old Lyme, Connecticut 06371, USA. [8] + xi + [1] + 308 pp. Softcover. US \$42.50. ISBN 0-9764316-0-2.

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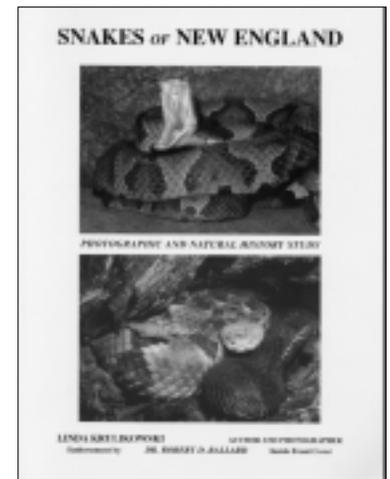
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In the preface and introduction of this book, the author explains how she, an admitted non-herpetologist, became fascinated with snakes. Her initial ophidiphobia, caused by ignorance and the same taught fear that many people experience in early childhood, came to a head when her own son's close friend was bitten by a copperhead. Rather than reacting with the mindless fear one might expect, the author took it upon her self to learn more about snakes and overcome her own prejudices, and then to share this new found respect and appreciation with others through public lectures and a book on the subject. The author explains that when she first tried to learn about snakes she found that most of the literature available to her was written by professional herpetologists for other professionals and, thus, not in a language accessible to her. She then set out to produce a book geared specifically to other parents. A few reservations aside, she appears to have succeeded.



Following the Preface, Acknowledgements and Introduction, this book is organized into two main sections: General Information and Specific New England Snakes. The first section includes six chapters on General Biology, Behavior, Venomous Snakes and Snakebite, Mythology and Folklore, and Classification. The second includes sixteen chapters: one each on Colubridae and Viperidae, followed by individual accounts for all native New England snake species. There are five appendices: Diagrams of Important Scale Identification and Terminology of Timber Rattlesnake, Radiotelemetry Studies on Snakes, Captive Care, Range Maps and List of New England Snakes, and Northeast's Only Reptile and Amphibian Rehabilitation Center. A glossary of terms and an extensive bibliography complete the book.

Of the chapters in the first section, probably the most interesting is that on folklore. This section deals with a mixture of folk tales regarding snakes and commonly held snake myths. The coverage, though not by any stretch complete, does deal with the most

frequently encountered myths and provides information on their biological explanations.

The chapter on snake bite warns against some traditional first aide treatments, including the more ridiculous methods such as electroshock, many of which do more harm than good to the victim, and instead advises those bitten to seek medical attention immediately. The only other first aide discussed as viable is the use of an extractor mechanism, but not instead of medical attention. Such suggestions in a non-technical book are a welcome improvement on the diagrams showing the incision and suction technique that were a mainstay of some of the similarly-focused books that many of us grew-up with.

As noted above, the target audience for this book consists of concerned parents and new-comers to the world of snakes who simply want to learn as much as possible in easy-to-swallow morsels. However, it is difficult to say all that is important about such an interesting group of animals in relatively few words that are accessible to the lay person. Only a few pages and few, if any, literature citations are needed to tell a simple snake story, but authors who research the subject matter and learn more, and want to tell the reader more, quickly discover that it cannot be done in a *Readers Digest* format without leaving out significant and valuable information on these fascinating creatures.

There is a lot to say about snakes and the natural history information about each species could (and frequently does) fill volumes. Abbreviating any of this into a bite-sized morsel for the novice is difficult and the author likely discovered when writing the species accounts exactly why it is that other books on this subject originally appeared to her to be long and wordy. Her accounts are also fairly lengthy, but they written in a language and tone that should be palatable to the novice reader. The biological information in the text appears to be accurate and well-researched and some personal observations or human-interest stories are included for each species of snake.

The author of *Snakes of New England* also served as photographer. Her scientific photographs have been published in other works, including books on cell biology and at least one other on snakes. For this book she managed to photograph in the wild adults and juveniles of nearly every species (apparently augmenting with captives in some cases) as well as most of the major color variants within each species known to occur within New England.

Of the more than 350 color photographs of snakes or snake habitat, several are used more than once. For example, Figure 3.11 = 20.2 = 21.1; Figure 10.1 = 10.14 = 8.17 and is also repeated in an un-numbered series of photos on page 64, as are Figures 8.10, 8.14 (same as 9.12), 9.1, 9.9 (which is also 9.13), and 11.1. This causes some confusion and can result in individual photographs, rather than individual species of snake, becoming familiar to the reader. Additionally, while the composition of the photos is generally good, excellent in some cases, the exposure and focus are too frequently less consistent in quality: Figure 13.2 is nearly too dark to see more than the pink belly of the worm snake; Figure 15.5 is a photograph of a black racer on oak leaves and seems to be just out of focus; Figure 16.3 seems fuzzy, though not really out of focus, it could be a digital zoom of a scanned image; Figure 16.13 is a juvenile black rat snake sitting coiled on a rock, out of focus; and Figure 17.13 appears to be upside-down. For all this, however, the photographs capture aspects of the natural history of New

England snakes that are rarely seen, let alone captured by a shutter. Among the more amazing shots, regardless of exposure, are photographs of hatching or birth in *Carphophis amoenus*, *Diadophis punctatus*, *Nerodia sipedon*, and *Agkistrodon contortix*. Also of interest are photographs of feeding by *Opheodrys vernalis* and *Storeria occipitomaculata*.

The illustrations are not as impressive as the photographs. Most are hand-drawn outline figures. Many appear to have been done as a high school art project, which may have been the case given the grass-roots aspect of this book. For example, the illustration of a cobra skeleton is crude at best, although it is clear what is intended. Illustrations in the dichotomous key are more useful and probably would be good references for the novice uncertain if a particular snake's scales are keeled or if the anal plate is divided or not. Line drawings of viperid fangs and mouth morphology are also acceptable and of likely use to the target audience. The maps are hand-colored with colored pencil.

This book was clearly a labor of love for the author and her helpers. However it could have benefited from additional external review and editing, including photo editing. Though well-researched and certainly a cathartic project for the author, the small details such as typographical errors, and inconsistent photo reproduction quality may be distracting to some readers. Still, the author has succeeded in producing a book on the snakes of New England (with information on snakes in general) for the non-professional reader. Though Conant and Collins (1998) may also be of use to this target audience, as it is to the rest of us, it covers all of the eastern U.S. and provides only abbreviated information about the biology of the species it covers. Klemmens (1993) is closer to the target focus, being about all amphibians and reptiles of Connecticut and adjacent areas (New York, Massachusetts and Rhode Island), but it contains details that may be too cumbersome for the novice reader and is out of print and not readily available. Behler and King (1979) covers all of North America, but also has inconsistent photo quality and is a generation out of date, though it is readily available in most shopping mall book stores.

Certainly this book could be of value to laypeople wanting information about New England snakes. However, the author appears to have missed an ideal opportunity to make her audience aware of the many local organizations and programs that promote the education and welfare of snakes and other reptiles. An appendix in *Snakes of New England* deals with a specific reptile rescue and rehabilitation center in Connecticut. The author claims that this is the only such organization in New England. Whether this is accurate or not may be subject to debate, but most of the many general wildlife rehabilitators in New England also deal with reptiles from time to time and several veterinarians treat native reptiles and amphibians each year. Nature centers at state parks and those run by private organizations including Connecticut Audubon Society also will care for wounded native reptiles and amphibians. Focusing on a single rehabilitation center may leave the reader unaware that there are, in fact, hundreds of people throughout the region in zoos, museums, herpetological and herpetocultural clubs, and governmental and non-governmental conservation agencies whose work benefits New England reptiles.

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Snakes of the Americas: Checklist and Lexicon, by Bob L. Tipton. 2005. Krieger Publishing Company, Malabar, Florida, USA (www.krieger-publishing.com). xiv + 477 pages. Hardcover + accompanying CD. US \$94.50. ISBN 1-57524-215-X.

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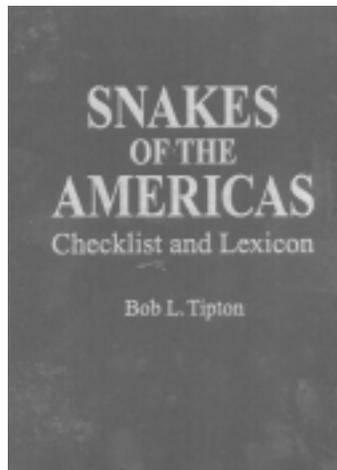
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Bob Tipton's book and CD are clearly a labor of love. The author set out on an almost quixotic quest to link the common names used most comfortably by "most people" (Jonathan Campbell in the Foreword), especially native peoples and herpetoculturists, to the names used by scientists. To a large degree he has succeeded.

The heart of the CD is an Excel file containing a lexicon of almost 21,000 common names of American snakes, in more than 350 different modern and indigenous languages and dialects. These names are keyed to scientific nomenclature. Data in this huge file are extracted into several smaller subfiles that make their access much simpler. The lexicon is a remarkable document, winnowed from the literature, from personal communications from native speakers, and from the author's personal experiences. I am familiar with the Guaraní names for Paraguayan snakes; Tipton did not miss any that I know of, and he had several unfamiliar ones.

Another file on the CD is Tipton's working file that served as a basis for the hardcover checklist. It lists the American snake taxa to subspecies, the author and date of the name, and the countries in which the taxon occurs. For Latin America south of México, this in effect updates the checklist of Peters and Orejas-Miranda (1970; revised by Vanzolini, 1986).

The book is an exhaustively annotated checklist of American forms to subspecies, with scientific names for all taxa below the Order Serpentes, including authorities for the names, common English names, citations to much of the recent taxonomic literature, range descriptions, and remarks where the author encountered conflicting opinions. The style is that of the partial checklist of McDiarmid et al. (1999), with elements of the Peters and Orejas-Miranda (1970) Latin American synthesis. A section of *incerta*



sedis contains 33 snake names that Tipton and other authors have been unable to allocate to currently recognized species. Finally, there is an 81-page bibliography, covering much of the taxonomic literature of New World snakes.

I am not a fan of invented common names. For starters, Tipton used the common names in Crother et al. (2000, 2003) for American species north of México, Liner (1994) for Mexican species, and Frank and Ramus (1995) for Central and South America. Where gaps occurred in these lists, Tipton coined new "recommended" common names. Inventing common names in an unfamiliar language can have confusing and even ludicrous results. For example, Tipton, following Liner, recommended the Spanish name "Culebra Palanaria de Sonora" for *Chionactis palarostris*. "Palanaria" is a frequent corruption in several languages of the flatworm genus *Planaria*. I doubt if a desert-dwelling sand snake has much to do with an aquatic worm. Delving further, we see that Tipton (and Liner) often use a translation of the Latin name for constructing a common name, and apparently *palanaria* is simply a misspelling of the Spanish *pala nariz*. This translates loosely as shovel-nosed, and is a direct translation of the Latin *palarostris*. There is another problem, however. *Nariz* is reserved for noses on humans; noses (and snouts) of animals are *hocicos*.

Trained in biophysics, Bob Tipton is, in his own words, an amateur, or serious novice, in the field of snake systematics. Recognizing this deficiency in his background, he became a protégé of one of the best: Jim Dixon of Texas A & M University. He also sought help from a long list of recognized authorities on problematic genera: Dixon for many genera; Hussam Zaher for *Oxybelis*, *Boiruna*, and *Clelia*; Robert Henderson for *Corallus*; Van Wallach for the *Scolecophidia*, etc.

However, the final result is uniquely Tipton. His lack of formal training shows through in many of his remarks, inconsistencies, and confused interpretations of taxonomic practice and content. For example, on page 3, the term "basal Alethinophidia" is a synonym of Haenophidia (or Henophidia elsewhere) "which are the Pythons and Boas." On page 8, "basal Alethinophidia" is a synonym of Macrostromata, which Tipton says, incorrectly, includes pipesnakes, boas and pythons. On pages 37–38, the term Haenophidia is dropped from the formal classification in favor of "Primitive (or BASAL) ALETHINOPHIDIA," which now includes only the Aniliidae. All other modern snakes, except *Scolecophidians*, are Macrostromatans, divided into basal Macrostromatans (*Bolyeriidae*, *Tropidophiidae*, *Boidae*, *Pythonidae*) and *Caenophidia* (all of the rest).

Reliance on non-peer reviewed publications, the opinions of amateurs, and the intrinsic problems in defining subspecies occasionally leads Tipton into a morass such as the mish-mash of "subspecies" of *Lichanura trivirgata* that have broadly overlapping geographic ranges.

The bibliography is one of the best parts of the book. The references appear to be accurate as far as they go, but key works are missed and secondary sources are often cited. In an especially personal example, Tipton credits a personal communication and the Smith and Smith (1993) checklist for synonymizing *Exelencophis nelsoni* and *Geatractus tecpanecus* with *Tropidodipsas annulifera*. However, this was done in Scott (1967), which is not in the bibliography. How many other, similar cases there are I can only guess.

Krieger Publishing and Tipton share responsibility for what is perhaps the most disturbing aspect of the book; it is replete with errors, both orthographic and factual. Some errors clearly predate the final editorial process, e.g., *Enicagnethus melanoauchen* [sic] for *Enicognathus melanauchen* (page 346) and the unjustified emendation of *Philodryas chamissonis* to *P. chamissona* in a misguided attempt to turn a Greek genitive ending into a feminine Latin nominative (page 201). These and other errors will have to be acknowledged in synonymies from now on.

The final editing was also incompetent. An especially egregious example is three spelling errors in a single phrase “sharing the punitive [sic] synapomorphy of a deeply bilobate hemipene [sic] and other characteristics of unknown polarization [sic]” (page 343). Suffice it to say that I cannot remember a herpetological work, produced in the USA, with so many errors. It is a shame that the contents of the book do not live up to the excellent presentation and binding.

In summary, professionals and amateurs using the checklist need to check constantly to be sure that what they read is accurate. Tipton’s book can be likened to a goldmine. There is much of value in it, but it must be selectively mined, and the resultant ore refined by experienced professionals.

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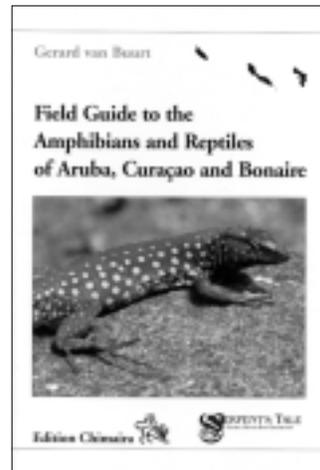
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Field Guide to the Amphibians and Reptiles of Aruba, Curaçao, and Bonaire, by Gerard van Buurt. Edition Chimaira, Frankfurt am Main, Germany (www.chimaira.de), distributed in the USA by Zoo Book Sales, Lanesboro, Minnesota (www.zoobooksales.com). 137 pp. Hardcover. US \$39.95. ISBN 3-980612-66-6.

The Reptiles and Amphibians of the Dutch Caribbean: St. Eustasius, Saba, and St. Maarten, by Robert Powell, Robert W. Henderson, and John S. Parmarlee, Jr. 2005. The St. Eustasius National Parks Foundation (STENAPA), Gallows Bay, St. Eustasius, Netherlands Antilles (www.statiapark.org/intro.html). 192 pp. Softcover. US \$25.00 ISBN 978-0-9673958-8-3.

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The Netherlands Antilles (“Dutch Caribbean”) consist of two remote clusters of three major islands each that could hardly be more different and still fit in the same sea. These two books mirror and surpass that degree of difference.

The first published, van Buurt’s *Field Guide*, is about the South American coastal islands of Aruba, Curaçao, and Bonaire (often called the ABC islands or Dutch Leeward) with a collective herpetofauna of 26 native or established exotic species (not counting marine turtles) of largely continental relationships. There is only one native amphibian, the leptodactylid *Pleurodema brachyops*, which will convince anyone of the close relationship of its family to Bufonidae. All the endemics are reptiles: The geckos *Phyllodactylus martini* on Curaçao and Bonaire and *P. julienni* on Aruba, the anoles *Anolis bonairensis* on Bonaire and *A. lineatus* on Aruba and Curaçao, the teiids *Cnemidophorus arubensis* on Aruba and *C. murinus* with geographic variants on all three islands, and the snakes *Leptodeira bakeri* on Aruba (and possibly the proximate mainland peninsula of Paraguana, Venezuela), *Liophis triscalis* on Curaçao, and—most celebrated of all—*Crotalus unicolor*, the rattler of Aruba.

In the preface van Buurt explains that this book began as an

English translation of a previously published Dutch version (not cited and not seen by me), but with extensive upgrading and revision. Still the text would have benefited dramatically from editing by someone schooled in grammar and spelling whose first language was English. Commas appear almost randomly scattered but are conspicuously absent from some places where needed. Novel spellings include “Caribbean” (p. 79), the indecisive San “Nicolaas” or “Nicolas” (p. 90), “Cricetidaea” for the rodent family Cricetidae (p. 118) that most of us now subsume into Muridae, and the snake “fer the lance” (p. 114). In fairness, however, these errors are minor and do not seriously detract from comprehension.

The text begins with a discourse on paleogeography going back to Pangaea that is out-of-date. Recent work by Christopher Scotese presented in Lomolino and Heaney (2004) shows that there never was a “Laurasia.” The Tethys seaway split Eurasia from North America and the latter remained attached to Gondwana for millions of years before a protocaribbean seaway opened. This ancient history, however, can have little to do with biogeography of living vertebrates. The notion suggested by van Buurt that iguanas date from Gondwanan unity does not fit with the evidence that their radiation is about 12 million years old (Hedges 2001).

A more troubling allusion to plate tectonics appears in a long (pp. 78–80) aside bracketed into the account of *Anolis bonairensis*. Here van Buurt dusts off the idea of the Dominica/Martinique tectonic juxtaposition put forth by Roughgarden (1995) to explain the Lesser Antillean relationship of *Anolis bonairensis* and the South American relationship of *Cnemidophorus vanzoi*. Perry and Lazell (1997) reviewed the geological evidence cited by Roughgarden and asserted that it had been catastrophically misunderstood: no evidence exists for that tectonic theory. Perhaps Perry and Lazell (1997) were wrong, but no one should assume that without checking the data and the geological texts.

The remainder of van Buurt’s lengthy biogeographic discourse supports waif dispersal with good, if anecdotal, evidence. Elsewhere, however, he asserts that anurans are virtually unable to disperse across sea water (p. 19) and that the gecko *Hemidactylus mabouia* “does not seem to have a natural habitat in the New World” (p. 59). Many anuran clades have dispersed across sea water, not just in the Antilles, but all the way to the Seychelles in mid-Indian Ocean and *H. mabouia* is frequent on native trees in the Virgin Islands (Lazell 2005).

There is an interesting discussion of herbivory in lizards detailing the remarkable situation of the *Cnemidophorus* in these islands: small to midsize, largely herbivorous species. However extensive evidence of facultative herbivory in other small lizards like anoles (e.g., Lazell and Mitchell 1998) was not noted. Conversely, the assertion that “The adult green iguana is fully herbivorous” (p. 67) cannot possibly apply to Lesser Antillean populations (Lazell 1973) that are aggressive, facultative carnivores whenever possible. While on *Iguana iguana*, I note van Buurt believes all Virgin Islands populations were “probably introduced” but Iverson (1980) documented distinctive *Cyclura*-like gut anatomy in the original St. Croix population. Indeed, van Buurt’s evidence from the islands he chronicles argues for great evolutionary diversity within *I. iguana*.

In the discussion of the introduced toad *Bufo marinus* van Buurt points out the potentially devastating effects this poisonous spe-

cies might have on native predators. He also documents with photos (66, 67) a snake, *Lepidoptera bakeri*, consuming one, but does not report on the fate of the snake. Readers should also note that, technically, the toad’s toxin is not a “venom” because it is not injected. Bits like this highlight the lack of a glossary which is needed for various terms used.

Generally, this is a solid guide with lots of interesting information and mostly good (some great) photos. I could wish for more detail on differences between closely related species, such as the geckos in *Phyllodactylus* and *Gonatodes*, and more information generally on a rarity like the lizard *Tretioscincus bifasciatus*, for which van Buurt seems to lack first hand information and shows only 70-year-old, very grainy, black-and-white photos.

In these respects this book tells us what we need to discover more about: a very useful and stimulating tool.

The volume by Powell et al. is a sort of natural history monograph loaded with technical detail (with terms defined in the text and a glossary). There are accounts of 25 species (including three marine turtles) four of which are established introductions: blind snake (*Typhlops* or “*Ramphotyphlops*” *braminus*), slider turtle (*Trachemys scripta*), whistling frog (*Eleutherodactylus johnstonei*), and Cuban treefrog (*Hyla* or “*Osteopilus*” *septentrionalis*). The latter two are the only anurans, so there are no native amphibians. Strictly speaking, there is only one endemic reptile, the Saba Anole, *Anolis sabanus*. This is an artifact produced by colonial history and resulting political boundaries: the three major islands—Saba, St. Eustatius, and St. Maarten—are on three separate oceanic banks (that were separate, larger land areas at glacial maximum). Were one to score endemic species on these banks there would be 11 more: the Red-faced Ground Lizard (*Ameiva erythrocephala*), Anguilla Bank Ground Lizard (*A. plei*), St. Kitts Bank Tree Anole (*Anolis bimaculatus*), Anguilla Bank Tree Anole (*A. gingivinus*), St. Maarten Bush Anole (*A. pogus*), the St. Kitts Bank Bush Anole (*A. schwartzi*), Anguilla Bank Dwarf Gecko (*Sphaerodactylus parvus*), Saba Dwarf Gecko (*S. sabanus*), Island Dwarf Gecko (*S. sputator*) Anguilla Bank Racer (*Alsophis rijgersmaei*), and Red-bellied Racer (*A. rufiventris*). Thus more than half the native herpetofauna is endemic to the banks with Dutch islands on them.

Powell et al. provide a lengthy discussion of conservation efforts and descriptions of conservation organizations active in these islands. Each species account also includes a section on conservation status. Two species, a skink (*Mabuya* sp. indet.) and the Anguilla Bank Racer, have apparently been extirpated from the Dutch islands (both from St. Maarten) but survive elsewhere. The native population of *Iguana delicatissima* also seems to be gone from St. Maarten, replaced by introduced *I. iguana*. Within *I. iguana*, Powell et al. make a strong case for the distinctiveness of the Saba population or form, but it was seriously reduced by human predation for food (a supposed aphrodisiac) a couple of decades ago, and may now be even more threatened by introduced pet trade *I. iguana*. Indeed introgression with exotic *I. iguana* threatens not only the genetic integrity of native *I. iguana* populations but the very survival of *I. delicatissima*.

Every species account in this book includes — in addition to fundamental description, distribution, and natural history data — sections on food, predators, reproduction, behavior, and conservation. Thus, this is far more than a field guide. The photographs are mostly excellent, although some are difficult to decipher (e.g.,

the lower of fig. 150; hint: search for the banded tail). Powell et al. weakly back me up on natural habitats for *Hemidactylus mabouia* (p. 110) but also say things like “Iguanas of all ages are almost exclusively herbivorous” (p. 65); they fess up to the truth occasionally: “... bird eggs and even carrion” (p. 66), “... bird eggs and carrion” (p. 73), and: “Young iguanas... will consume insects and other small animals...” (p. 61) [whenever they get the chance, believe me].

In addition to the regular eight headings in each species account, there may be an additional comment. That for the skink *Mabuya* is especially appealing to me because I believe considerable evolutionary diversity is going unrecognized in these lizards. In addition, many populations, as the authors note, are apparently declining and some have been extirpated before we got them sorted out.

The only account with which I have real problems is for the Asian exotic blind snake *Typhlops* or “*Ramphotyphlops*” *braminus*. The genus “*Ramphotyphlops*” is defined solely on the basis of male hemipenial structure and this species consists entirely of parthenogenetic females. Furthermore, these snakes frequently produce live young although they can also lay eggs (Lazell 2002 and references therein). Lastly, this blindsnake is not confined to the tropics but has apparently established populations as far north as Virginia and even Massachusetts (Savitsky et al. 2002 and references therein).

While a third longer than van Buurt’s book, that of Powell et al. is short and compact enough to function as a field guide. The pages are plasticized; this makes for excellent photographic presentation and is water and mildew proof. However, the pages stick together infuriatingly and are very stiff. My copy is already breaking up at the binding and soon will be a bundle of cards. Much more than a field guide, Powell et al. is a virtual introduction to

herpetology using the species of this little island cluster as examples. I can strongly recommend Powell et al. as a densely fact-packed good read on geology, geography, conservation, and natural history in general.

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AMPHIBIANS & REPTILES OF THE BAY ISLANDS AND CAYOS COCHINOS, HONDURAS

James R. McCranie, Larry David Wilson & Gunther Köhler
Foreword by John R. Meyer



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