

BOOK REVIEW

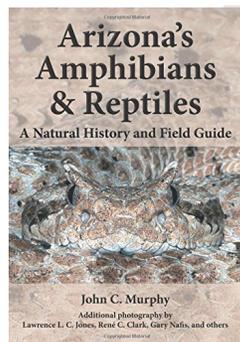
# Reptiles and Amphibians of Arizona, A Natural History and Field Guide

Jason A. Fantuzzi, Herpetological Associates, Inc., 405 Magnolia Rd., Pemberton, NJ 08068; [j.fantuzzi462@gmail.com](mailto:j.fantuzzi462@gmail.com)

Since the late 1970s we have enjoyed a burgeoning procession of herpetological field guides. A few, more recent examples, include such volumes as the third edition of Stebbins' *Field Guide to Western Reptiles and Amphibians* (2003) and *Lizards of the American Southwest* by Lawrence Jones and Robert Lovich (2009). Besides the larger regions covered in these geographically macroscopic guides, there are more localized resources available. There is currently a field guide for almost every state in the US and if not, one can otherwise find their state grouped with another (e.g., *The Reptiles and Amphibians of Delmarva* by James F. White, 2002/2009 or *The Reptiles and Amphibians of the Carolinas and Virginia* by Jeffrey C. Beane, et al. 2010). For the past several years, the preferred guide of mine and many others has been the highly comprehensive, yet basic *Amphibians and Reptiles of Arizona* by Thomas Brennan and Andrew Holycross (2006).

Arizona has welcomed a multitude of reptile and amphibian "herpers" running the gamut from amateur enthusiasts to academic herpetologists, particularly from July to September. This summertime pilgrimage often involves extensive camera gear and notebooks but would not be complete without at least one field guide in every vehicle covering any visited regions. The most recent of these volumes is *Reptiles and Amphibians of Arizona, A Natural History and Field Guide* by John C. Murphy released March 2018. At a standard 7.5 × 25 cm and a portable 730 g, this book is perfect to stow in a hiking pack while exploring Arizona, as well as for casual reading and referencing. While thumbing through the species accounts (pp. 16-289) the reader will appreciate the large, bold text, truly a benefit when reading by headtorch to identify a newly "road-cruised" snake. The content table section of this book, pages viii-x, are written in a typical format, though smaller font than the bulk of the book and include the original describing author's name, as any interested student of herpetology should expect. One of the few publishing errors found in this book are the lack of bolding for the binomials *Aspidoscelis xanthonota*, *Sceloporus cowlesi*, and *S. tristichus*; truly a minor oversight in this outstanding volume.

One of the most salient features of this book, before one even opens the cover, is revealed in the title: "...A Natural History AND Field Guide". I am a proponent of "guide books" which make the best effort to cover not only the identification of reptiles and amphibians afield but also a meticulous delve into the natural history and behavioral ecology of those taxa being observed. It is in that aspect



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John C. Murphy

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where this book truly excels, the author clearly having put an extraordinary amount of time into the composition of this tome. The information provided in the species accounts section, covering 184 species and subspecies of 30 families (as per this volume) is truly remarkable. The accounts in many other guides are mostly relegated to short paragraphs of information often resulting in a degree of redundancy. Rather than fragmented sentences, e.g., "...Mates in April", or "Lays between 4 to 6 eggs", it is appreciable to read more elaborate descriptions such as the multi-page accounts of this book, while maintaining a practical size for field use. Insufficient data notwithstanding, there must be some better resources in the literature than what is sometimes listed, and many of those much more basic field guides do not cite literature for morphometrics or reproductive biology. Given the number of references cited in this volume (nearly 250) it is evident that the author utilized a much wider breadth of samples to provide this book with its size ranges, etc. Unfortunately, I did not find the reference for the mention within of *Latrodectus* (Widow Spiders) as predators of *Micruroides euryxanthus*, an interesting record indeed. As a herpetologist specializing in cladistics, it comes with no surprise that Mr. Murphy offers the most currently accepted taxonomy and nomenclature on each species covered in this volume. I was pleased to see the mention of such systematics as the relations of *Salvadora* using the most recent phylogenies. To that point, I was interested to learn (as an admitted "ophidiophile") that bufonids are sister taxa to the Hylidae, a relation that many "anuraphiles" likely learned well before me.

The range maps, overlain with dot localities represented by voucher specimens (mostly via museum databases) which the reader will find representing each species are excellent. Those who have enjoyed Braswell and Palmer's compendium, *Reptiles of North Carolina* (1995) will appreciate that feature of this volume as well. There is no distinction between dot localities (literature vs. museum vouchers) as in the former; nevertheless, the latter has avoided the "gray areas" produced by using shading

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to delineate the distribution of a particular reptile or amphibian. Additionally, county boundaries are provided to offer a basic sense of spatial location whenever a reptile or amphibian is observed afield. As with most GIS-produced maps, the utilization of darker or lighter areas as well as shadowing has illuminated the terrain creating a topographic dimension. Interestingly, this aspect often correlates with geographic barriers such as the Madrean Line and Mogollon Rim corroborating contemporary research and effectively relating that to the reader. These and other such barriers and evolutionary filters are discussed with geologic timescales in the section titled, "Geologic Events, Barriers, and Speciation", pp. 3-5. These are not necessarily to be confused with biotic communities, as highlighted in *A Field Guide to Amphibians and Reptiles of Arizona* (Brennan and Holycross 2006). Although specific biotic communities are not mentioned in this volume, pages 8 and 10 offer first a wide view of many of the ecoregions found not only in Arizona but much of the western US, then followed by a precipitation map for those interested in this largely xeric state.

As in every field guide, photographs are provided for the proper identification of a reptile or amphibian in hand and nearly 250 photographs grace the pages of this book. Generally, there are from one to three images in the accounts section for each species covered. The species account for *Bufo* (= *Anaxyrus*) *punctatus* is particularly impressive and includes four images comprising all of the toad's life stages. Though there are no identifying characters highlighted in the image as in many other bona fide field guides, such characters can be found noted in each species account nonetheless. I was disappointed at the lack of images of ontogenetic shift in phenotype as in the genera *Coluber* and *Masticophis*. One example that did attempt to elucidate such a shift was not quite as evident as it could have been: in the species account for *Elgaria kingii* whereby juveniles possess such a distinctive pattern of wide, boldly contrasted bands that they may well be confused with certain Galliwasp lizards (*Diploglossus* spp.) of Latin America much further south rather than conspecifics of *E. kingii*. The photo provided was a subadult specimen at most, with much of the adulthood pattern already having coalesced. One image that I felt should have been given more time was that of *Crotalus obscurus*. One can readily see a mulch substrate and a metallic frame, evidence of a photograph taken under *ex-situ* settings. While the author was certainly not attempting to fool readers into believing it an *in-situ* photo, it left me desiring to see an image that was. This book is published on a newsprint type paper unlike the glossy pages of more traditional field guides. Although this feature undoubtedly lends itself to cost-effectiveness, it also seems to have affected a poor resolution on many of the images within. This is disappointing because I know John Murphy and his colleagues produce exemplary images of the reptiles and amphibians with which they work. Notwithstanding, there are some beautiful, well-composed images to be found. Among some of the more striking images are the

*Crotalus molossus* (pp. 275-276) by Lawrence Jones and René Clark respectively, the *Chionactis annulata klauberi* (p. 199) by Daren Riedle, and the author's own image of the *Sceloporus jarrovi* pair (p. 73), arguably Arizona's most beautiful phrynosomatid lizard.

Appendices 1-6 (pp. 294-299) feature commonly used morphometrics for each order and suborder of reptile and amphibian covered within. Appendix 5 provides exceptional illustrations highlighting the cephalic morphology of the seven indigenous Arizonan *Phrynosoma* spp., including the newly elevated, *Phrynosoma goodei*, formerly a subspecies of *P. platyrhinos* (Mulcahy et al. 2006). A reader will find these illustrations a significant resource given the amount of distributional overlap and abundance within the genus, particularly in Cochise County.

In keeping with the "notes from the field" format of many field guides, Mr. Murphy has included a small number of anecdotal accounts of himself and his colleagues; just enough to provide the reader with an entertaining view into "herping" the state of Arizona. In my opinion, excessive anecdotes and author's accounts should fill the pages of neither field guides nor natural history books and, while often highly entertaining, are rather best left for autobiographies and more casual publications (or at least offered sparingly as here). The reader will also find several historical facts about the original descriptions and discoveries of certain taxa native to Arizona within each species account. I found the record of the first Arizonan *Craugastor augusti* and the brevity of the original description of *Crotalus viridis* (Rafinesque 1818) quite interesting, as well as mention of the ambivalent presence or absence of plethodontid salamanders in the state. Although readers will find the pages within this volume nearly typographically flawless, there was one grammatical error that was slightly difficult to move past fluidly: in the section "A Note on Frog Calls", the first sentence of the second paragraph reads, "...The advertisement call, may be a simple one note call or a more complex composed of...". Later, on p. 223 in the account of *Senticolis triaspis*, the genus name *Panthera* (a category of "big cats") is mistakenly printed rather than the word *Pantherophis* for the North American ratsnakes. Another much more blatant typo which is difficult to overlook occurs on p. 246, the introduction to the Thamnophiini including the invasive *Nerodia fasciata*: the abbreviated version of the subfamily Natricinae is here erroneously spelled "Natracines", then "Natracidae" (using the prefix "-idae" to infer family status), and finally, "Natrids" all within five opening sentences. Additionally, for some reason usage of the word Colubrinae is the heading to the "typical snakes", those exclusive of the elapids, viperids, boids, and the scolecophidians represented in Arizona. Colubrids or Colubridae would have been a better heading, especially given the inclusion of another subfamily, the natricines, within this section. Murphy recognizes the distinction and familial status of the Dipsadidae (Benavides et al. 2012), itself more frequently relegated to subfamily (Zheng and Wiens 2016, Figueroa et

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al. 2016). However, recognized here as full family status, I felt it should have followed the “watersnakes” rather than been placed between two subfamilies. Perhaps the author wished to recognize the morphological and ecological similarities between the Colubrinae and Dipsadidae, highlighting the character traits of those keeled-scaled, aquatic natricines afterward. All considered, I was pleased to find a very few additional and minor typos throughout the pages.

Overall, I was extremely impressed with this volume and delighted to see it out and available in both hard and soft cover editions. Readers will be entertained and enlightened by John Murphy’s writing style, and no field excursion to Arizona during those visits to the state would be complete without a copy of *Arizona’s Amphibians and Reptiles: A Natural History and Field Guide* on hand. Ironic that a book written about amphibians has itself an amphibious use, enjoying a “dual life” of equal time on fancy, glass-fronted book cases in home libraries of herpetologists as well as being jostled around in a field vehicle driving through lightning-blazed nights of monsoonal showers and wandering frogs, snakes, and lizards.

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