

## Frogs: Inside Their Remarkable World

By Ellin Beltz. 2005. Firefly Books, Richmond Hill, Ontario. 175 pages.

The spectacular feature of this book is its over 160 vivid colour frog portraits and two coloured diagrams of skeletal and internal structures of a typical frog from a variety of sources which effectively depict the range of frog diversity. But it is not just another pretty picture book. The text, though brief, is both instructive and entertaining on a wide range of frog topics. It is a near perfect introduction to a world overview of these lively and attractive animals for anyone young or old.

Two opening pages are acknowledgments in which the author confesses her obsession with frogs since childhood and thanks the people who have influenced and helped her through her life thus far. The book is dedicated to one of these, the late herpetologist Angus Bellairs. His remarkable ability share his knowledge was observed by Beltz to hold the attention of listeners from school children to aging veteran herpetologists.

A three-page introductory text tantalizes the reader to read further with contrasts such as one toad observed to eat over one thousand food items in a day with some frogs in hot deserts that can go six months or more without eating. Twelve pages cover natural history starting with the Egyptian use of a frog profile to represent the number 100 000 and the Roman coinage of rana from the call of their local pond frogs. Subsections cover Life Before Amphibians which included simplified geological time scale table and a map of the super-continent Pangaea, prior to its break-up. A major portion, 50 pages, is the section on frog diversity in a traditional classification of families [publication was before the massive overhaul of classification and the breakup of many genera by Frost et al. (2006 American Museum of Natural History Bulletin 197)]. This is followed by 35 pages on anatomy and physiology, 26 on environment adaptation, 24 on frogs in

myth and culture. In the latter it is noted that “Considering their amazing choruses, breeding, groups, huge numbers, of eggs and offspring, it is easy to see how early peoples would make the connection of frogs with fertility”.

The book concludes with a 4-page epilog, 8 pages of frog miscellany: largest frog is *Conrana golith* of Africa which can weigh up to 8 pounds (3.6 kg) and grow to 35 inches (89 cm) long, the smallest are the Gold Frog, *Psyllophryne didactyla* in the southern hemisphere and *Eleutherodactylus iberia* of the northern, each measuring  $\frac{3}{8}$  inch (9.5 mm). Concluding the book are a 6-page glossary, a surprisingly brief 2 pages for references (although British Columbia’s Harry Parsons’ *Frogs with Attitude* is one of the few that are included), 3 pages of photo credits and a nine page index.

In an Epilog, Beltz is upbeat on the future for frogs, in contrast to the many recent publications which stress their decline. Her view is matter-of-fact acceptance. “All may be lost for some frogs, but other frogs are – as they have been for millions of years – on the move and expanding their range.” And on dynamics and change: “Nature is unbalanced. Nature is random ... events are rarely, if ever, predictable. That is why Nature is described as ‘stochastic’ – random events happening randomly, producing what can be made to appear like an ordered structure”. She speculates that as frogs which expand their ranges subsequently “become isolated in new habitats, speciation may occur. Or the frogs may be wiped out in stochastic events. It is Nature. One never knows”.

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## Natural History of West Indian Reptiles and Amphibians

By Robert W. Henderson and Robert Powell. 2009. University of Florida Press, Gainesville, Florida. xiv + 495 pages.

The West Indies has long been as attractive to herpetologists as it is to sun-seeking tourists. Colonization of, and evolution on, the over 600 islands comprising the Greater and Lesser Antilles that lie between Florida and South America, have produced a researchers’ paradise. The various degrees of separation between islands and their diverse topographies have combined to influence the evolution of a multitude of forms. This has long drawn taxonomists and ecologists alike to study their relationships and division of habitats.

This book is neither a coffee-table presentation nor a field guide for tourists. The colour cover depicts a patternless reddish-brown snake, *Magliophis exiguous*, family Dipsadidae, of Puerto Rico and Virgin Islands.

Three other species, two lizards and a frog have colour cameos, one on the spine and the others on the back cover. But inside, it is all black-and-white, with only 34 photographs, each depicting a single representative of each included family.

The text begins with two maps, one of the entire Antilles and a companion map of the Lesser Antilles on a larger scale. A 22-page introduction follows which lays out the content and organization of the book. Figure 2 on page 4 emphasizes the growth of herpetological studies for the islands. It charts the total papers published which included natural history data on amphibians and traditional reptiles (excluding birds) varied from one in the 1740s to 50 in the 1930s. Due

the second World War research production dropped in the 1940s to 27 papers but publication rebounded in the 1950s with 62 papers. This marked the initiation of the intensive studies of anolis lizards by Ernst Williams and his students and of the total herpetofauna by Albert Schwartz. Thereafter, the increase has been steady with every succeeding decade and reached 697 in the 2000s.

The major portion of the book, 385 pages, presents individual accounts for 197 species of frogs and 539 reptiles (364 lizards, 17 amphisbaenians, 145 snakes, 8 turtles, and 3 crocodylians). These represent 8 families of frogs, 11 of lizards, 2 of amphisbaenids, 8 of snakes, 3 of turtles and 2 of crocodylians. Most West Indian species are unique, 99% of the frogs and 93% of the reptiles are endemic. Included in the totals are both the native and established (reproducing) introduced species. Omitted are introduced species which have not sustained an initial presence and those only recorded once which are presumed to be incidental waifs. These accounts completely omit traditional description and identification discussions to concentrate

on tight summaries of published natural history. Major topics are covered under boldface headings for easy finding. These include distribution and habitat, and often abundance, activity, behavior, reproduction, parasites, size and conservation status. These accounts are backed up by an 80-page Literature Cited section containing over 2600 references from which information was extracted.

Both serious naturalists and researchers living in, or visiting, the West Indies will find this encyclopaedic natural history an indispensable reference to the published research. The more casual or anyone needing descriptions for identification will still have to depend on the 1991 *Amphibians and Reptiles of the West Indies: Descriptions, Distributions and Natural History* by Albert Schwartz and Robert W. Henderson (University of Florida Press, Gainesville) or wait for the field guide in preparation by Blair Hedges.

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## The Rise of Amphibians: 365 Million Years of Evolution

By Robert Carroll. 2009. John Hopkins University Press, Baltimore, Maryland USA. xii + 360 pages.

The big event in our past prehistory was the challenge met by early aquatic fish-like vertebrates of colonizing the land, already populated by tempting and doubtless abundant invertebrate prey. A bonus to be gained was an escape from the increasingly crowded conditions in the adjoining water. But the later evolved often spectacularly sized dinosaurs have gained the largest share of public interest particularly from younger audiences. Since the extinction and replacement of the once-dominant larger amphibians, the group has survived, still surprisingly diverse and numerous as much smaller forms. Here, however, we are taken back to their initial ancestral appearance and long dominance.

Robert Carroll has long been synonymous with vertebrate evolution studies at Redpath Museum, McGill University. He came with an impeccable background as a Ph.D. graduate from Harvard University, a student of the legendary icon in palaeontology, Alfred Sherwood Romer. During his tenure he has, in turn, mentored a stream of diverse PhD graduate students. Some of these have come to the Canadian Museum of Nature for various periods, notably Michael Caldwell (origins of snakes) Robert Holms (dinosaurs), and Alison Murray (fish), all moving later to fossil-rich Alberta, and Xiao-chun Wu (crocodylians) who has stayed.

This book fills a long-standing gap in texts. In 16 chapters it covers the first tentative emergence to the land. It follows amphibian diversification and dominance to a mass extinction 250 million years ago. It then covers the eventual vertebrate recovery and the

amphibian replacements that evolved from the surviving stock. It concludes with the success of modern amphibians followed by speculation on the future of amphibians contributed by Carroll's successor as Director of Redpath Museum, modern herpetologist David Green. The ex-COSEWIC chair who, though admitting that there are current declines and even disappearance of some species, emphasizes that the group has survived many environmental past disasters and rebounded. It may even do better through the current human-induced one than us humans ourselves.

Fossil history is detailed by over 200 black-and-white illustrations of fossil skeletons of forms a often given only cursory coverage in many popular evolution texts in their haste to get to the time of the dinosaurs. A spectacular special color section is inserted between chapters 6 and 7. It contains 16 plates illustrating conceptions of the major extinct forms and concludes with examples from surviving groups: frogs, salamanders and caecilians.

Anyone interested in the early prehistory of vertebrates (and that should be all of us) should read this book. Its emphasis on the oft-neglected steps on the evolutionary ladder between fish and fish-like groups and the succeeding later vertebrates bring a treasure of detail largely long buried in obscure (to the majority of naturalists) scientific journals. We would not be here today without the benefits of the amphibian ancestral contribution.

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