

## Frogs of the United States and Canada (2 Volumes)

By C. Kenneth Dodd Jr. 2013. John Hopkins University Press, 2715 North Charles Street, Baltimore, MD, USA, 21218-4363. 982 pages, 180.00 USD, Cloth.

There is something irresistibly attractive to many about frogs. Perhaps it's their mechanical hopping that has appealed to us since our childhood, perhaps it's the bursting out in song by males to attract females and intimidate rivals which signals the beginning of spring in the north and/or later in the seasons before imminent rain, continuing in a succession of shifts of species into summer, and resuming sporadically in late summer and fall, with breeding in southern localities. Perhaps it is their long history back to their first known appearance of frog-like fossils from the early Triassic Period (225–245 million years ago).

Because of their position in the food chain as both an important consumer and consumed, indications of a world-wide decline in frogs has gained considerable attention in recent years. The alarm was initially raised at the first World Congress of herpetology in 1989 because of the realization when herpetologists from many countries assembled that major declines in frogs were being noted in many regions. Frogs, partly because of their annual vocalizations were conspicuous for monitoring, were soon widely promoted as “canaries in a coal mine” to monitor general environmental health. Publications burgeoned as funding increased and included new conservation-focused journals. Even in Canada, although only one frog had been recently extirpated, Blanchard's Cricket Frog, once common on Pelee Island, many other frog species are now listed as endangered or at risk by the Committee on Species of Endangered of in Canada (COSEWIC).

In North America public interest in frogs in general was focused by Mary Cynthia Dickerson in 1906 with *The Frog Book* and further nourished in 1914 by the classic life history studies by the husband and wife team of Albert azen Hazen and Anna Allen Wright. This study presented detailed treatment of identification for eggs and tadpoles, and timing of transformation and maturity from the authors' base at the Cornell University campus at Ithaca, New York. It was followed in 1932 by a similar treatment of the frogs of Okefenokee Swamp on the Georgia–Florida border plus some additional species omitted from the earlier study. In 1933 a compilation for all of North America was published as *Handbook of Frogs and Toads* by the Wrights. This was expanded in a second edition in 1942 and a third edition in 1949 blending their earlier studies with notes from their field work across North America and the rapidly growing literature. This remained the standard for the next 60 years until then 2009 publication of *The Frogs and Toads of North America: A Comprehensive Guide to Their Identification, Behaviour, and Calls* appeared which gathered the increased information on frogs appearing in continental and regional field guides.

*The Frogs of the United States and Canada* is the newest comprehensive contribution. The author states that it is intended as a synthesis of the published scientific (peer-reviewed) papers for these countries through May 2011. It is not a field guide to identification, for the latter the reader is directed elsewhere. In the 17-page introduction which condenses general information on frogs it is stated that “as this book is completed (April 2013) there are more than 6,900 species of frogs known worldwide with new species being described at a rapid pace”. One hundred species (10 just barely) occur north of the United States–Mexico border; 27 of these are said to occur in Canada but my own tally falls short by two. None are unique to Canada. After contrasting various morphological variations within frogs there are brief entries on anuran evolution, life history, frog conservation, etymology, and “about this book” giving account headings measurements, precision, and generalizations. The latter has very pertinent remarks on differences between authors in ways of stating variables and the often lack of consideration of regional differences in many publications. It is stressed that what appears to be a wealth of published data actually reveals a great deal of repetition, some of it inexact. It also stresses and how little is known yet about basic variations in frog natural history. Omitted, presumably as it lacks the quality control of peer review, is much of the regional information in the so-called “grey literature” of unpublished texts and theses, reports for government and private firms, natural history and herpetology club newsletters and on-line postings and status reports (although some of the later, often with sensitive data removed, and atlases, often with precise information on localities removed, are at least available on-line). The introductory material concludes with a section “For further information” which covers standard reference books on herpetology including general overviews, catalogue, management and conservation, and listing of selected internet sites and atlases, sound recordings, and professional, herpetological societies in North America.

The bulk of content (pages 1–460 volume 1 and 462–832 volume 2) is comprehensive species accounts which cover nomenclature, etymology, identification (brief descriptions supplemented with photographs of adults, eggs, tadpoles, and habitats), distribution, fossil record, systematic and geographic variation, adult habitat, terrestrial and aquatic ecology, calling activity and mate selection, breeding sites, reproduction, larval ecology, diet, predation and defence, population biology, community ecology; diseases, parasites and malformations, susceptibility to potential stressors, status and conservation. The concluding bibliography on pages

837–973 is a comprehensive synthesis of more than 4,500 references (author's count) of peer-reviewed literature to May 2011.

Throughout, the most recent studies are largely accepted which means that recent taxonomic decisions based on DNA studies replace some longstanding ones on morphological variation. For example, the abandoning of subspecies in the Green Frog, *Lithobates clamitans*, and the application of the name *Pseudacris maculata* to populations of Chorus Frogs in the northeastern portion of the Great Lakes-St. Lawrence corridor which had been formerly known as *P. triseriata* (the latter is retained for populations to the southwest). In such a comprehensive work lapsi are inevitable. Dodd himself advises the checking of original references given for verification of statements. Canadian portions of distribution maps are often poorly and carelessly done. Examples abound but particularly misleading is the creation of overlapping ranges by inclusion of *Anaxyrus hemiophrys* in the northwest corner of Ontario and *A. americanus* extended to mid-Manitoba despite the documented hybridization between these forms and their

failure to maintain separate populations whenever their ranges meet. This makes the occurrence of one within the range of the other highly unlikely. Some introgression of characters may account for confusion from the older literature. A record for *Pseudacris maculata* in the interior of Quebec is based on a cataloguing error. In the distribution map for *Hyla chrysoscelis* it is omitted from Manitoba though its presence is noted in the text. A text oversight is that a hybrid documented from the range overlap zone in Alberta between *A. hemiophrys* and *A. boreas* is mentioned in the account of the former but omitted from the latter.

The price and the sheer extensiveness of the documentation may put this effort beyond the budget or needs most naturalists but it is a must investment for any serious researcher on any aspect of North American frogs or any institution which includes research on them in its mandate.

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