

Amphibians of Ohio

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The US state of Ohio lies along the southwestern end of Lake Erie, between Pennsylvania on the east and Indiana on the west. It is adjacent on the north to the richest area (southwestern Ontario) for species of amphibians and reptiles in Canada. Ontario includes the most northern of the Lake Erie's western islands. It is therefore unsurprising that the accounts contained in

this detailed review of Ohio amphibians which includes the islands to the south (as well as the mainland beyond) are very relevant to the interests of Canadian herpetologists, naturalists, and conservationists.

Publication on Ohio's amphibians and reptiles began early in the nineteenth century when they were included by Jared Porter Kirkland in his 1838 list cov-

ering the settled region west of the Appalachians at that time. Ohio frogs and toads were treated in detail by Charles F. Walker in 1946 based on field surveys he initiated with colleagues and students in the 1930s but a companion volume on salamanders did not appear until the multi-authored treatment edited by Ralph A. Pfungsten and Floyd L. Downs in 1989.

The growing attention on herpetological research after the Second World War was reflected by the initiation of the *Ohio Journal of Herpetology* in 1957 by the Ohio Herpetological Society. The journal was soon rechristened as the *Journal of Herpetology* and its publisher as The Society for the Study of Amphibians and Reptiles. This became a leading international research journal, joining the longer established *Copeia* (originating at the American Museum in New York in 1913 and later adopted as the publication of the American Society of Ichthyologists and Herpetologists) and *Herpetologica* begun in Kansas in 1936 which became the publication of the Herpetologists League. Despite its world coverage and influence, many of the society's members continued to focus their efforts, at least in part, on their native herpetofauna in Ohio.

The latest contribution of the latter and their supporters is a weighty volume by many measures, including sheer size (over 900 pages). This detailed treatise begins by presenting summaries of the influences on Ohio herpetofauna of its geology, soils, climate, habitats, and the integrated Ohio environment. Then there are sections on amphibian systematics (including diagnosis of families). The species accounts which follow are the major contribution. They begin with identification keys for all included species followed by individual coverage for each member of five families of salamanders (24 species, 13 of these occur in Canada) and four families of frogs and toads (14 species, 12 of which occur in Canada). A bonus account covers hybrid salamanders which are usually female and may be diploid, triploid or higher polyploids. These variously have genes from *laterale* combined with one or two of *jeffersonianum*, *tigrinum*, *texanum*, and *barborei*. Accounts cover etymology, synonyms, taxonomic status, common names, description, and all aspects of natural history. They also include photos of typical and variant

metamorphosed juveniles and adults, salamander larvae and anuran tadpoles, eggs, drawings of key morphological and behavioural features, tables of measurements and photos of habitats. Together these set a new standard for regional coverage. They draw not only on herpetology research in the state but also studies beyond its borders wherever significant observations and data on species present in Ohio. The distribution of each species Ohio is presented on a vegetation base map with dots for only those county records that have vouchers (photographs or museum specimens). Three time periods are distinguished (before 1952, 1952-1989, and after 1989). A small inset map gives the whole North American range.

Final sections cover potential occurrences and exclusions, and practical applications of the data gathered for developing priorities for conservation of Ohio's amphibian diversity; amphibian conservation; Ohio amphibian distributions; environmental applications. Indicative of the comprehensiveness of this volume and therefore its value as a reference to the ever-growing number of productive researchers focussing on amphibians, is that the double-columned Literature Cited takes 73 pages.

Support for this publication reflects, like its multiple authorship, how effective group effort can be. Its development has been supported by the Ohio Division of Wildlife through its Wildlife Diversity and Endangered Species Fund, with additional assistance for printing from Cincinnati Zoo, the Cleveland Museum of Natural History, the Columbus Zoo and Aquarium, the Crane Hollow Foundation, the Toledo Zoo, the Akron Zoo and the Toledo Naturalists' Association.

In recent decades there has been a succession of new guides to other states, but this is by far more comprehensive and detailed than is usually attempted and raises the bar to a level that its successors will find hard to exceed or even match. All the many people contributing to the research, review, editing, and publication may be justly proud.

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