

## Herpetology: An Introductory Biology of Amphibians and Reptiles, Second Edition

By George R. Zug, Laurie J. Vitt, and Janalee P. Caldwell. 2001. Academic Press, A Harcourt Science and Technology Company, 525 B Street, Suite 1900, San Diego, California 9210-4495 USA. xiv + 630 pages.

This book can trace its origin back to the pioneering textbook *Introduction to Herpetology* by Coleman J. and Olive B. Goin published in 1962 (reviewed by J. S. Bleakney in *The Canadian Field-Naturalist* 77(3): 170-171), with a second edition in 1971 (reviewed in *The Canadian Field-Naturalist* 88(2): 248-249). A third edition in 1978 added George Zug as coauthor. In 1993 a completely new *Herpetology* by Zug appeared (reviewed in *The Canadian Field-Naturalist* 109(4): 483-485). Its present second edition is so extensively rewritten it could well be considered a new work itself. Not only has it increased in thickness by 103 pages, but it has more text per page, as it is broadened in height and width, from compact textbook 23.4 × 15.7 cm to near coffee-table format at 28.5 × 22.1 cm.

The bulk of the new text is in six parts covering 531 pages: (I) Evolutionary History — Tetrapod relationships and evolutionary systematics, anatomy of amphibians and reptiles, Evolution of ancient and modern amphibians and reptiles; (II) Reproduction and Life Histories — Modes of reproduction and parental care, Reproductive ecology and life histories; (III) Physiological Ecology — Water balance and gas exchange, Thermoregulation, performance, and energetics; (IV) Behavioral Ecology — Spacing, movements, and orientation, Communication and social behavior, Foraging ecology and diets, Defense and Escape; (V) Population and Community Ecology — Population structure and graphical ecology, Conservation biology; (VI) Classification and diversity — Caecilians, Salamanders, Frogs, Turtles, Crocodylians, Tuataras and Lizards, Snakes. These are followed by a 6-page Glossary of technical terms from “abiotic” to “xeric”. The Bibliography covers 57 pages with the vast majority of entries being from the 1980s and 1990s. Two indices conclude the book, one to taxonomic names and the other to subject.

The authors (as outlined in the preface) have updated the text in line with contemporary (to mid-1999) systematic practices in biology. New phylogenetic concepts lead hierarchial reworkings of classification by clades, each “a group of organisms containing an

ancestor and all its descendants”. The latter led to major change that will seem especially radical to the lay reader. Traditional textbook higher-level labels such as order, class, etc., have been abandoned, and even family and subfamily categories have been avoided as such. However, names formerly applied to the latter are often retained for current clades. Throughout, one cladistic interpretation has been selected for each group, sometimes the result of combining two previously proposed. However, a strength of the presentation is its illustration of the dynamic, seemingly ever-changing, state of modern systematics by the frequent inclusion of alternate classifications of recent authors. Like the previous edition birds are shown as within the reptilia clade, paired with the crocodylians among the living groups (figure 1.15). For convenience, however, the text covers reptile biology only for the traditional unit exclusive of birds, still leaving the biology of feathered reptiles to textbooks by ornithologists.

Throughout the entire work references are given to the literature for all subject matter, either cited directly in the text for specific studies or at the end of each section under additional reading and reference headings. The book is profusely illustrated with black-and-white figures, diagrams, and photographs through the first five parts. But the sixth has colour, both for ranges in the many distribution maps and also for often spectacular photographs of living individuals representing significant clades.

My review of the 1993 edition concluded (quoted by the publishers on the back cover of the new edition), “This will be a valued, and oft-consulted, addition to any naturalists’ or conservationists’ library for its up-to-date comprehensive overview of these ecologically important groups and their role in the contemporary environment; it is a must for anyone just starting into the field of herpetology in order to orientate themselves.” This is even more true now for the new edition which, sweepingly and effectively, largely replaces the old. However, conservatives in classification may still want to keep the earlier edition handy on their shelves for reference to traditional units of higher classification.

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