

Preface to Volume 7

THE taxonomy of amphibians, like that of other groups of organisms, has gone through a number of historical transitions from the "type concept" of Linnaeus through the "new systematics" of the mid 20th century, and finally to cladistics and phylogeography. Many approaches have been adopted and continue to be useful. The modern attempt to classify organisms in a way that reflects, not merely their similarities and differences, but their phylogenetic relationships is known as "systematics". In the present volume, taxonomy is treated within this framework.

An amphibian, as a functioning biological entity, exhibits morphological, physiological, behavioural, and biochemical characteristics whose expressions are controlled and regulated by an interaction of developmental and genetic attributes. Systematics can be studied at any one of these levels, or in various combinations. Convergence of different approaches lends confidence to the resulting classification. When, however, use of different kinds of characters leads to disparate schemes, research directed toward resolving conflicting interpretations is stimulated. For this reason, differences of opinion indicate growing points of the science and are considered healthy and desirable. Accordingly, in this volume no attempt is made to present a classification to which there is universal agreement among herpetologists. Such does not exist. Rather, a plethora of approaches and methodologies are presented along with the interpretations arising from them in the hope that debate will lead to renewed endeavour. Of particular importance has been the development of molecular techniques as taxonomic tools and a main emphasis of the future will likely be reconciliation of the results of this approach to phylogeny based on more traditional methods.

The first chapter provides an historical background of the field, following which systematics is treated from the standpoint of different character-systems and methodologies. Chapters 2 and 3 are written from a morphological perspective, the former dealing with soft tissues and the latter with bones. Most chapters of this series constitute comprehensive reviews rather than accounts of primary research on specific taxa. Chapter 3 is an exception in that it deals with a particular taxon, the discoglossoid frogs, and deals with original data. This exception was made because it illustrates a somewhat novel morphological technique, and because it fills a gap in coverage in Volume 5 (Osteology). Chapters 4 and 5 respectively examine the topic at the phylogeographic and molecular levels respectively, whereas Chapter 6 interprets phylogeny in terms of karyology and cytogenetics. Finally, the last two chapters deal with behavioural characters, Chapter 7 considering life histories and Chapter 8 evaluating the role of acoustics.

Authors submitted their chapters at different times, over quite a long span. As soon as a chapter was received, peer-reviewed, and edited, galley proof was prepared. Although this speeded production, it did mean that authors submitting their papers later in time had the advantage of seeing and citing very recent papers that were not included in the submissions of earlier authors. This is especially true of the monograph by Frost *et al.* (2006) in which quite a number of taxonomic reassessments were made. That paper appeared after all but two chapters had been through the proof stage, and as a consequence only one chapter cites it; two chapters deal with it as a brief addendum. The new taxonomic arrangements espoused by Frost *et al.* (2006) are likely to be controversial and their paper should stimulate research designed to test their phylogeny; those investigations doubtless will employ all the approaches described in the present volume.

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REFERENCES

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