

concerning a relatively little-documented region of the Neotropics. There is a detailed chapter summarizing world studies of competition/niche overlap between crocodilians, and the book concludes with a chapter on Man and Crocodilians, which includes assessments of the impacts of subsistence hunting and the current status and conservation concerns for these species in Suriname.

Of the factors studied by the author as potential contributors to niche differentiation between the three species, I feel that additional in-depth efforts to quantify reproductive effort and its contribution to population structure and dynamics would be most likely to pay-off in terms of providing further important information. We can hope that such studies are either underway or planned for the future. The strength of the research undertaken by the author and his colleagues is clearly in such field-work/population studies rather than in related experimental laboratory work. An example of the latter is found in chapter 10, which describes laboratory studies exposing juvenile *C. crocodilus* and *P. palpebrosus* to varying levels of salinity in laboratory containers; this is in my opinion, the weakest part of the book. Although I don't necessarily quarrel with the conclusion that *P. palpebrosus* is not adapted to saline conditions, I really don't think that the experiments described were adequate in and of themselves to support that conclusion because of problems with small sample sizes and an inability to evaluate the effects of previous history of salinity exposure/adaptation of the populations from which the subjects were collected. Here and elsewhere throughout the book a number of statistical tests are applied which do not seem appropriate (e.g., repetitive *t*-tests instead of standard multiple-range testing), and graphs presenting data often lack critical information (e.g., vertical error bars are not labeled as to whether they represent ranges, SE, or SD).

It is probably inevitable that, by the time a book such as this is edited and prepared for distribution, its formerly current literature citations will have already begun to become a bit outdated. In this case for example, of the 193 references cited, only one (and that being one of the author's own papers) was more current than 1993, and some important recent references, such as Magnuson's important species accounts for *P. trigonatus* and *P. palpebrosus* in the *Catalog of American Amphibians and Reptiles* (1992) were not included. On the other hand, the author's ability to find and translate works which were written in Dutch in the late 1700s has now made the findings of this important

literature accessible to English-speaking scientists—a most important contribution in its own right. There are several places in the text where a final editing might have helped to clear up points that may have become confused or changed in meaning in the course of English translation. An example of this is the statement on page 2 that the black caiman (*Melanosuchus niger*) “has not been found in Suriname until now.” Reading further in chapter 6, however, reveals that this species has *still* not been found in Suriname; therefore, what the above quotation must have actually meant was that the black caiman has not *yet* been found in Suriname—a subtle but important difference in wording and meaning.

Overall, however, this is a nice little book which is definitely worthy of consideration for purchase by anyone interested in crocodilians, reptilian community dynamics, or conservation biology in the Neotropics. It would make a nice “case study” for assignment and critiquing in graduate courses in herpetology, community ecology, or conservation biology. Although produced in paperback, the book still seems a bit overpriced (in US dollars), but this isn't too surprising for such a European publication. The book has abundant useful photographs and is an easy read—I was able to get through it in a relatively few sessions—helped along by a very pleasant and colorful style of narration. The author deserves our respect and gratitude for producing an important piece of work in a field of study and part of the world in which such accomplishments are few and far between.

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FISH MORPHOLOGY: HORIZON OF NEW RESEARCH. J. S. Datta Munshi and H. M. Dutta (eds.). 1996. Science Publishers Inc., Lebanon, New Hampshire. ISBN 1-886106-31-2. 300 p. Available from Enfield Distribution Co., PO Box 699, Enfield, New Hampshire (603-632-7377). \$99.00 (hardcover).—As we near the end of the millennium, perhaps it is to be expected that a variety of claims will be made about this transitional time. Some will look forward to the next century and the technical advances that will surely occur in how we investigate fish biology. Others will focus on those theoretical or conceptual areas in which we still lack a solid frame-

work of predictive hypotheses on which to structure empirical investigation. And still others will use the turn of the century as a time to take stock, summarize what we now know, and abstract current knowledge with an eye to the future.

This book of contributions on various topics in fish morphology takes the latter approach. As promised on the jacket of this volume, "The techniques and methodology used in this book represent the knowledge prevailing at the end of the twentieth century"; and the editors further explain in their introductory chapter (p. xxv) that "the twenty-first century awaits a much higher level of research in functional morphology, some for which foundations have already been laid in this book." These are indeed lofty goals; and given the wealth of recent contributions on the experimental morphology of fishes, historical patterns of morphological traits as revealed in current phylogenetic analyses, and the increasing sophistication of descriptive morphological analyses of individual characters, one might look forward to a treatise that deftly summarizes current knowledge while clearly outlining needed directions in the next century.

Unfortunately, this book falls well short of meeting those expectations. Only a few individual authors adequately summarize the state of current research in their chosen area, and even fewer enumerate new directions that should be taken as we move forward into the next century. There have been so many recent technical advances in functional morphology, and so much progress has been made on the descriptive morphology of fishes that it is particularly noteworthy how idiosyncratic some of the chapters are and how limited their coverage is.

The topics covered in this overview of fish morphology are widely varied and include a study of one aspect of the head of cichlid fishes, an analysis of some aspects of catfish morphology, descriptions of gill morphology and function, vascular organization in lungfish, and studies of the effect of pesticides on fish. One noteworthy and positive feature of this book is that extensive coverage also is given to many aspects of internal anatomy, especially of the gastrointestinal tract. For example, there are chapters on the ontogeny and function of digestive caecae; the morphology and function of the liver, gallbladder, and biliary tract; and morphology of the swimbladder, ovary, and eggs. In general, this is an area that does not receive much coverage in studies of fish anatomy, and it is welcome to have even brief overviews in this book.

However, despite solid chapters on the lungfish vascular system and fish gill morphology,

most of the chapters are disappointing in failing to present either novel data or syntheses of the current literature. Indeed, several of the chapters ignore much of the recent literature of the last 10 years and, hence, could hardly be synthetic even under the best of circumstances. In particular, the chapters on fish locomotor muscle and head morphology are especially deficient in their coverage of the many novel recent advances. And, by taking a rather peculiar approach to their respective subjects, manage to leave the reader with an incomplete view of research on fish trophic and locomotory systems, both of which have been especially active areas of work in recent years. Neither chapter gives a sense of the technical advances that have contributed so greatly to the study of function in these systems; and in common with many other chapters, neither places morphological data in a historical context or presents new directions for research. In the chapter with the greatest phylogenetic content, Shrivistava uses his reconsideration of various aspects of catfish morphology to argue for new phylogenetic position for catfishes: removing them entirely from the Ostariophysi. He indicates three possible placements for catfishes, including one at the very base of the Actinopterygii as the sister clade to the Cladistia plus other actinopterygians.

Given the recent extensive use of morphological data for both phylogenetic and functional research in fishes and the many technical and analytical advances that have occurred concomitantly, the possibility for an exciting book giving an overview of morphological methods, data, and results still exists. There is certainly a need for a modern summary of fish morphology (perhaps with a focus on the musculoskeletal system from which so many phylogenetic characters have been taken), as well as a volume that incorporates recent results on the function of these morphological systems. These books could point the way to new directions for research in the next century.

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AMPHIBIANS AND REPTILES OF NEW MEXICO. W. G. Degenhardt, C. W. Painter, and A. H. Price. 1996. University of New Mexico Press, Albuquerque, New Mexico. ISBN 0-8263-1695-6.