

A New Monograph Series

EVOLUTIONARY MONOGRAPHS is a new monograph series, sponsored by the Society for the Study of Evolution and the result of more than ten years of effort. Because of its open policies it will probably publish more monographs than any other series and thus become the major outlet for long papers in the evolutionary half of biology. We urge you to ask your institution to subscribe. There will be no informational mailing to libraries; the initiative for subscriptions must come from prospective readers. The series is in operation and the first monographs were published in 1979. The initial vertebrate emphasis is accidental.

SCOPE: Evolutionary Monographs is for monographs and other papers which need to be too long for unsubsidized publication in ordinary journals. Each volume will contain one monograph except perhaps for some monographs near the lower limit on size (40 double-spaced pages, including the equivalent in figures). Symposia and other groups of related papers are acceptable in principle, but the editor should be consulted in advance about refereeing. Major bibliographies and other nonstandard works are acceptable. Some out-of-print monographs from other series may later be reprinted, but these will be excluded from the standard subscription.

THESES are not acceptable until revised into publishable form. This should be done by the author before submission; otherwise the manuscript will be returned to the author without review. Most theses include unnecessary literature reviews and other extraneous material. Reviews are acceptable as parts of monographs as well as separately, but they must be critical and in themselves an original contribution.

SUBJECT: Evolutionary biology in the broadest sense. All of stratigraphic geology is included, as are ecology, floras, animal behavior, professional works on history and philosophy related to evolutionary biology, and many other subjects. Probably most monographs will be taxonomic or morphological.

LENGTH AND FORMAT: There is no maximum length, although unusually long monographs will be split into parts. Reproduction will be offset from single-spaced typescript except for the wrap-around cover. Photographs and other halftones are grouped into plates and printed by 110-line screen. (The size of photographs should be adjusted for this resolution, which we hope to improve later). No color or folding plates are available. A short abstract is required, noting all the important results.

WHO CAN SUBMIT: Anyone, worldwide. There is no payment required from authors, although voluntary payment of page costs is welcome. The language is English unless other arrangements are made before submission, which will not always be possible.

PUBLICITY: The author, title, pagination, and purchasing information for each monograph will appear in *Evolution*, and this information plus the abstract will appear in *Evolutionary Theory*.

COST AND SUBSCRIPTIONS: Initially, monographs will cost about \$0.098 per page of the text and \$0.23 per plate. An appreciable reduction in cost is likely if enough subscribers are obtained. We regret the high initial cost, but expenses are high for small printings. Subscriptions are at a 10% discount from the single-copy price, in U.S. currency, and orders from individuals receive a 15% discount even for single copies. Authors' copies have at least a 50% discount if ordered before printing. Otherwise authors receive one free copy. Subscription is ordinarily by deduction from a deposit account (minimum deposit \$100), on which information is available on request.

FREQUENCY: Irregular. There is no definite maximum number of monographs per year. Publication can be expected from one to a few months after receipt of the final manuscript.

REFEREING: All monographs will be reviewed for scientific quality, clarity, and brevity, whenever possible by two referees. The first editor is Leigh Van Valen. A large and carefully chosen editorial board functions to suggest referees in particular topics. The author is also welcome to suggest referees.

SUBMISSION: Monographs (2 copies will expedite review), subscriptions, and single-copy orders should be sent to

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EVOLUTIONARY MONOGRAPH 1. The comparative osteology and phylogeny of the Beryciformes (Pisces: Teleostei), by Steven J. Zehren. ii + 389 pp. November, 1979. Initial price \$38.50; \$32.75 to individuals.

Abstract: A comparative osteological examination of the living members of the Order Beryciformes is performed in order to determine their phylogenetic relationships. The degree of phylogenetic relationship among taxa is determined by measuring the amount of similarity in derived character states.

26 species (representing 24 genera and 11 families) of beryciforms were cleared and stained for examination. Complete osteological descriptions and numerous illustrations of eight of these species [Polymixia lowei (Family Polymixiidae), Anoplogaster cornuta (Anoplogasteridae), Diretmus argenteus (Diretmidae), Centroberyx affinis (Berycidae), Photoblepharon palpebratus (Anomalopidae), Monocentris japonicus (Monocentridae), Paratrachichthys sp. (Trachichthyidae) and Ostichthys trachypoma (Holocentridae)] are included.

70 characters, representing all parts of the skeleton, are selected for analysis. For each character numerical states are assigned to represent the categories of phenetic expression present in the members of the Beryciformes. In addition to the 26 Recent species examined, the phenotype of numerous fossil beryciforms is taken into consideration when designating character states (the data for the fossils are taken from the literature).

After defining the states present in a character, it is necessary to construct a character state tree showing the sequence of change in states. The method which is used to determine the primitive states of characters (i.e., the states from which the sequences of change began) involves making "out-group" comparisons. The Beryciformes compose the "in-group" while all other teleosts constitute the "out-group". By examining members of the "out-group" both below (more primitive than) and above (more advanced than) the Beryciformes in terms of their level of structural organization, it is usually possible to determine which state represents the primitive beryciform condition. A wide variety of teleosts, including members of the Myctophoidae, Ctenothrissiformes and Pattersonichthyiformes, is selected to represent the "out-group". A detailed analysis reveals that although there is no strong evidence to suggest that any one of the three groups noted above is particularly closely related to the ancestor(s) of the Beryciformes, all three groups lie closer to this ancestry than any of the other members of the "out-group" examined. Emphasis is therefore placed on the character states present in myctophoids, ctenothrissiforms and pattersonichthyiforms when attempting to determine the primitive vs. derived nature of the states present in beryciforms.

For multiple state characters (characters with three or more states), it is also necessary to determine the correct sequence of change in the derived states.