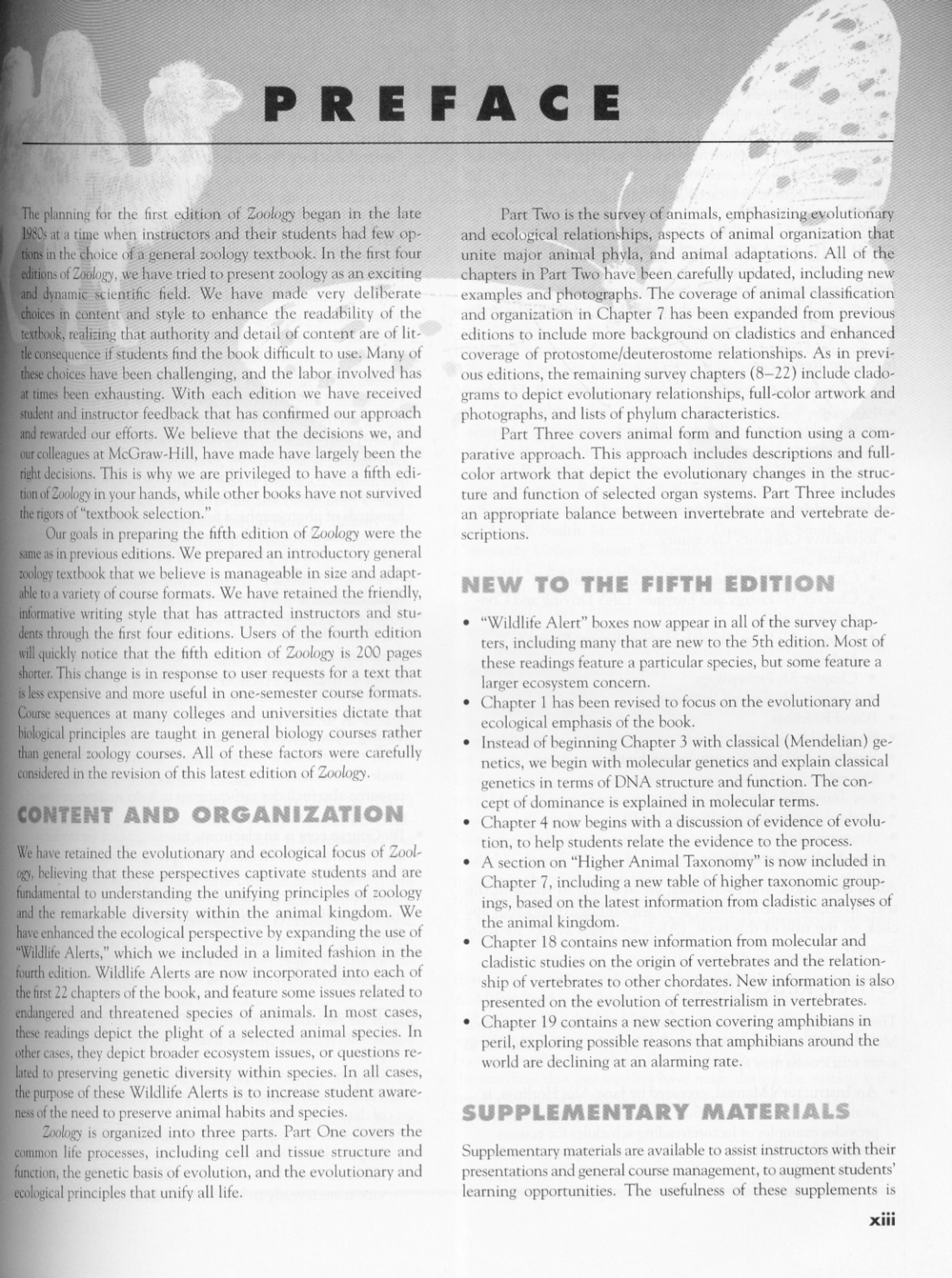




# PREFACE

The planning for the first edition of *Zoology* began in the late 1980s at a time when instructors and their students had few options in the choice of a general zoology textbook. In the first four editions of *Zoology*, we have tried to present zoology as an exciting and dynamic scientific field. We have made very deliberate choices in content and style to enhance the readability of the textbook, realizing that authority and detail of content are of little consequence if students find the book difficult to use. Many of these choices have been challenging, and the labor involved has at times been exhausting. With each edition we have received student and instructor feedback that has confirmed our approach and rewarded our efforts. We believe that the decisions we, and our colleagues at McGraw-Hill, have made have largely been the right decisions. This is why we are privileged to have a fifth edition of *Zoology* in your hands, while other books have not survived the rigors of “textbook selection.”

Our goals in preparing the fifth edition of *Zoology* were the same as in previous editions. We prepared an introductory general zoology textbook that we believe is manageable in size and adaptable to a variety of course formats. We have retained the friendly, informative writing style that has attracted instructors and students through the first four editions. Users of the fourth edition will quickly notice that the fifth edition of *Zoology* is 200 pages shorter. This change is in response to user requests for a text that is less expensive and more useful in one-semester course formats. Course sequences at many colleges and universities dictate that biological principles are taught in general biology courses rather than general zoology courses. All of these factors were carefully considered in the revision of this latest edition of *Zoology*.

## CONTENT AND ORGANIZATION

We have retained the evolutionary and ecological focus of *Zoology*, believing that these perspectives captivate students and are fundamental to understanding the unifying principles of zoology and the remarkable diversity within the animal kingdom. We have enhanced the ecological perspective by expanding the use of “Wildlife Alerts,” which we included in a limited fashion in the fourth edition. Wildlife Alerts are now incorporated into each of the first 22 chapters of the book, and feature some issues related to endangered and threatened species of animals. In most cases, these readings depict the plight of a selected animal species. In other cases, they depict broader ecosystem issues, or questions related to preserving genetic diversity within species. In all cases, the purpose of these Wildlife Alerts is to increase student awareness of the need to preserve animal habits and species.

*Zoology* is organized into three parts. Part One covers the common life processes, including cell and tissue structure and function, the genetic basis of evolution, and the evolutionary and ecological principles that unify all life.

Part Two is the survey of animals, emphasizing evolutionary and ecological relationships, aspects of animal organization that unite major animal phyla, and animal adaptations. All of the chapters in Part Two have been carefully updated, including new examples and photographs. The coverage of animal classification and organization in Chapter 7 has been expanded from previous editions to include more background on cladistics and enhanced coverage of protostome/deuterostome relationships. As in previous editions, the remaining survey chapters (8–22) include cladograms to depict evolutionary relationships, full-color artwork and photographs, and lists of phylum characteristics.

Part Three covers animal form and function using a comparative approach. This approach includes descriptions and full-color artwork that depict the evolutionary changes in the structure and function of selected organ systems. Part Three includes an appropriate balance between invertebrate and vertebrate descriptions.

## NEW TO THE FIFTH EDITION

- “Wildlife Alert” boxes now appear in all of the survey chapters, including many that are new to the 5th edition. Most of these readings feature a particular species, but some feature a larger ecosystem concern.
- Chapter 1 has been revised to focus on the evolutionary and ecological emphasis of the book.
- Instead of beginning Chapter 3 with classical (Mendelian) genetics, we begin with molecular genetics and explain classical genetics in terms of DNA structure and function. The concept of dominance is explained in molecular terms.
- Chapter 4 now begins with a discussion of evidence of evolution, to help students relate the evidence to the process.
- A section on “Higher Animal Taxonomy” is now included in Chapter 7, including a new table of higher taxonomic groupings, based on the latest information from cladistic analyses of the animal kingdom.
- Chapter 18 contains new information from molecular and cladistic studies on the origin of vertebrates and the relationship of vertebrates to other chordates. New information is also presented on the evolution of terrestriality in vertebrates.
- Chapter 19 contains a new section covering amphibians in peril, exploring possible reasons that amphibians around the world are declining at an alarming rate.

## SUPPLEMENTARY MATERIALS

Supplementary materials are available to assist instructors with their presentations and general course management, to augment students’ learning opportunities. The usefulness of these supplements is