

Preface

The stated goals of the first edition—to make it current, balanced, and integrated—remain the goals of the second edition. Many questions about animal behavior have yet to be answered. This adds excitement to research. This also reminds us of the need to think critically about existing data and to test alternative hypotheses for explanations of behaviors. For these reasons, I have developed more topics with a hypothesis testing approach.

Although I strove to make this edition current, I was keenly aware that students of animal behavior will better understand the ideas and controversies of today if they are familiar with the background of the topic. Since animal behavior is often taught as an upper level course in both biology and psychology departments, I elected to keep the basic background material in genetics, neurophysiology, and endocrinology. My hope is that this will allow a student who is unfamiliar with the basics to move to the cutting edge of modern research in animal behavior without having to bone up through independent study. Furthermore, I have retained the classic studies but have substantially updated the content. For example, many of the molecular approaches to the study of behavior, such as the use of knock out mice and the molecular basis of the circadian clock, are now included. Molecular techniques have also proven to be useful for determining parentage, which has raised some interesting questions about the evolution of mating systems.

The title of this book, *Perspectives on Animal Behavior*, stems from my awareness that there are varied viewpoints within the field of animal behavior. Furthermore, whereas some researchers are primarily inter-

ested in the mechanisms underlying behavior, others are more concerned with the evolution of animal behavior. I have tried to maintain a balanced presentation that includes information on both the mechanisms and the evolution of behavior. To that end, I have included all the major approaches to the field. One issue that continues to stir up debate is the question of animal awareness. I have addressed this question in several chapters, showing how studies in learning, orientation mechanisms, and communication might help us grapple with the issue.

Although a specific discussion often focused on one approach to the study of behavior, I integrated the information as often as possible. For example, this edition has a new section on the hormonal basis of selected adaptive behaviors, including mate choice, alternative reproductive strategies, mating systems, and helping at the nest. As we will see, the endocrine system is just one proximate mechanism through which natural selection can act to increase an individual's fitness.

The organization of the second edition is similar to that of the first. The first chapter discusses some of the reasons for studying animal behavior. It then looks at cooperative breeding among dwarf mongooses, an example of behavior that illustrates how our fullest understanding of behavior results from the integration of information on both its mechanisms and its evolution. Finally, the chapter emphasizes the importance of testing alternative hypotheses to explain behavior. Part One introduces various approaches to the study of behavior. It begins with a discussion of the history of the study of animal behavior because that is the foundation on which current and future studies rest. It then

considers specific approaches to study, including genetics, evolution and ecology, learning, neurobiology, endocrinology, and development. Part Two discusses some of the problems faced by the individual surviving in its environment and Part Three considers some aspects of social living.

There are also some important changes in the second edition, most of which were suggested by reviewers.

- Parts of Chapter 10 and Chapter 11 have been combined to form a single chapter on the Mechanisms of Orientation.
- Natal philopatry and dispersal, the ecology of territoriality (Chapter 16), and the costs and benefits of migration (Chapter 10) have been combined to form a new chapter entitled The Ecology and Evolution of Spatial Distribution.
- Chapter 16 (Sociality, Conflict, and Resolution) is a new combination of topics, which was largely sug-

gested by reviewers. Sociality and territoriality are from the original Chapter 16. The discussion of dominance relationships is new. The discussion of game theory and single conflict encounters has been moved from Chapter 4.

- The chapters on Communication have been reorganized. Chapter 18 is a description of communication and its functions. Chapter 19 discusses the evolution of communication.

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