

PREFACE

Although it has been only four years since the publication of the third edition of *The Economy of Nature*, the fourth edition includes details of many new developments in ecology as well as broader coverage of traditional topics, rearrangement of some material to provide a more logical organization, and changes in the presentation to improve clarity. *The Economy of Nature* remains a basic textbook in ecology for undergraduate students, with explanations of the general principles of ecology and narrative accounts of the lives of organisms and the workings of ecological systems. As in previous editions, I have endeavored to develop topics, including mathematical models of ecological processes, in a clear and logical fashion, and to balance theory with experimental studies and empirical examples of ecological patterns.

More than ever, ecology is a vital and growing discipline, with new concepts, discoveries, and basic information accumulating at a rapid pace. Furthermore, the connections between the basic principles of ecology and the causes of environmental problems are becoming better understood. This provides some hope for solutions to the dilemma of providing for a growing human population within the constraints of limited space and natural resources. This book emphasizes the critical need for basic understanding of ecological principles and the commitment to act on them.

The fourth edition of *The Economy of Nature* has been revised from cover to cover, with substantial changes in many chapters, including updated coverage and editing for clarity. There are some new topics in the fourth edition, such as a treatment of the biome concept in ecology with a detailed comparison of the terrestrial and aquatic biomes of the earth (Chapter 5). You will also find new sections on phenotypic plasticity (reaction norms) (Chapter 11) and phylogenetic reconstruction (cladistic analysis) (Chapter 21), among other subjects. Some examples, such as the obligate mutualistic relationship between the yucca and its moth pollinator, have been expanded considerably to illustrate general principles, in this case that of coevolution.

A major change in the fourth edition is the addition of a two-color art program throughout the book. In addition to making the text more attractive, I hope that the use of a second color will enhance the graphical

presentation of data and concepts. The full-color photo essays have also been retained and somewhat revised with a new selection of photographs. I have also increased the use of "Boxes" to set apart from the main text certain statistical or methodological topics.

As in the past, I have been very pleased with the response of teachers and students to the third edition of *The Economy of Nature* and hope that this new edition will serve your needs even better. Many of the changes have been in direct response to comments and suggestions received from those of you who have used the book, and I look forward to hearing from more of you in the future. This book is an important part of my professional life because of the immense amount I learn from working on it and the many personal interactions it has brought. I hope that *The Economy of Nature* will continue to be current, relevant, and engaging for those who study ecology in the future.

Finally, as I wrote in the preface to the third edition, I hope that *The Economy of Nature* will encourage students to appreciate the natural world they live in, and the increasing impact of human activities on the natural world—our world. Progress toward an ecological balance depends on the rational application of knowledge and understanding. We are the technological species; now we must become the ecological species and assume a responsible position in the economy of nature.

St. Louis

August 1996