



## The Biology of Reproduction

Reproduction is fundamental to life; it is the way life persists across the ages. This book offers new, wider vistas on this vital biological phenomenon, exploring how it works through the whole tree of life. It explores facets such as asexual reproduction, parthenogenesis, sex determination and reproductive investment, with a taxonomic coverage extending over all the main groups – animals, plants (including algae), fungi, protists and bacteria. It collates into one volume perspectives from varied disciplines – including zoology, botany, microbiology, genetics, cell biology, developmental biology, evolutionary biology, animal and plant physiology, and ethology – using as far as possible a common terminology. The book aims to identify the commonalities among reproductive phenomena, while demonstrating the diversity that exists even among closely related taxa. Its integrated approach makes this a valuable reference source for students and researchers, as well as an effective entry point for a more in-depth study of specific topics.

**Giuseppe Fusco** is Associate Professor of Zoology in the Department of Biology at the University of Padova, Italy. He is a researcher in evolutionary and developmental biology and has edited three volumes in these fields. He previously collaborated with Alessandro Minelli on *Evolving Pathways* (Cambridge, 2008).

**Alessandro Minelli** is a former Full Professor of Zoology and, in retirement, an affiliated senior scientist at the University of Padova, Italy. He has served as vice-president of the European Society for Evolutionary Biology and as specialty editor-in-chief for evolutionary developmental biology of *Frontiers in Ecology and Evolution*. He is the author of several books on evolutionary biology, including *The Development of Animal Form* (Cambridge, 2003) and *Plant Evolutionary Developmental Biology* (Cambridge, 2018).

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GIUSEPPE FUSCO  
University of Padova

ALESSANDRO MINELLI  
University of Padova



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## Preface

In this book on the biology of reproduction, all the main facets of this large chapter of the life sciences – e.g. sexual and asexual reproduction, parthenogenesis, sex determination, reproductive investment – are addressed, with a taxonomic coverage extending over all the main groups: animals, plants (including algae), fungi, protists and bacteria. Information about the many topics presented in the book is usually scattered in volumes on general and systematic zoology, general and systematic botany, microbiology, genetics, cellular biology, developmental biology, evolutionary biology, animal and plant physiology, and ethology – where the individual topics are treated with variable levels of detail. For the student or the general reader interested in the subject, the obvious difficulty represented by the fragmentation of the relevant information is magnified by the various and often idiosyncratic approaches to the subject adopted in these works. This makes it difficult to identify the commonalities among reproductive phenomena and processes across the tree of life while, conversely and paradoxically, the treatment of the subject in this dispersed literature is often generalized to the extent that it hides the diversity of reproductive phenomena frequently found even among closely related taxa.

While dealing with subjects as varied as the binary division of unicellular algae, the separation of a sequoia's stolon from the mother plant, the mating of squids, the production of spores by boletus mushrooms, or the paternal care of Darwin's frog, we try to present all these phenomena using a common language for all living beings, at least in the most general aspects of their reproductive biology, thus overcoming the diversity of the technical terminology in different traditions, e.g. in botany, zoology, microbiology, transmission genetics.

The text is aimed primarily at university students with a basic knowledge of general biology, but it will also be useful to professional biologists and philosophers of biology, as well as to non-expert readers interested in the more general aspects of reproductive phenomena.

This work is a revised and updated translation of a book we published last year in Italian as *Biologia della riproduzione*. We are grateful to our Italian publishers Pearson Italia for their support in producing this English edition. At Cambridge University Press, Dominic Lewis endorsed our proposal from the first moment we floated the idea that eventually materialized in these pages. Along the way to publication, we enjoyed the precious assistance of Aleksandra Serocka, Jenny van der Meijden and Hugh Brazier.

Several colleagues have contributed significantly to the realization of this work. We would like to thank Wallace Arthur, Lorian Ballarin, Ferdinando

## Preface

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Perhaps nobody can claim to be a professional in a subject as broad as biological reproduction, in all its multiple aspects and across the whole tree of life. The authors certainly cannot. We will be grateful to any readers who flag errors, imprecisions and significant omissions.

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