

Preface

For good reasons, many people have a fascination with the key role that oxygen plays in the life (and death) of animals and humans. That is the theme of this book: how vertebrates get the oxygen they need, and how some even manage without it for shorter or longer periods. We therefore hope it will find a relatively wide audience. Thus, the book aims to provide a thorough introduction to the respiratory physiology of vertebrates for anyone with some basic physiological knowledge, including biologists, biomedical researchers, veterinarians, and physicians. We also hope that the book will function as a textbook for courses at the MSc and PhD student level, and we have made an effort to start treating the subject at a level intelligible for bachelor students who have had their first introductory year in biology (including some physiology). By being extensively referenced, each chapter should also function as an up-to-date review for researchers who have decided to venture into a particular area of respiratory physiology.

The first four chapters cover basic aspects of vertebrate respiration, whereas the last five chapters describe particular physiological challenges met by many vertebrates and include many examples of more-or-less extreme respiratory adaptations.

The idea for this book was born in April 2006, when I was approached by Jacqueline Garget from Cambridge University Press in connection with the Society of Experimental Biology meeting in Canterbury. At that meeting, I was organizing a session on 'Life with and without oxygen' to honor the memory of my friend Peter L. Lutz, who left us much too early, in February 2005. After some discussion, Jacqueline and I agreed that I should try to put together a comprehensive book on the subject of vertebrate respiratory physiology, rather than producing a volume of talks given by Peter's friends at this session. I knew that two journals (*The Journal of Experimental Biology* and *Comparative Biochemistry and Physiology*) were engaged in producing special issues in Peter's honor, and a book

based on the session in Canterbury would inevitably be a somewhat arbitrary collection of quite specialized papers. While fearing being naïve, I aimed high and approached a number of outstanding researchers who collectively should be able to cover virtually all important aspects of vertebrate respiratory physiology. To my surprise, they all accepted the task. Indeed, they did so with enthusiasm. I am very grateful to all of them. The result is this book.