

Preface

A well-accepted definition of *Ecology* is that of Charles Krebs (1985), who said that it represents the scientific study of the interactions that determine the distribution and abundance of organisms. During a number of decades, this discipline has emphasised the research on the second of these two components, investigating the process that explains changes of populations and communities over time, with less consideration of the spatial context of these changes. In the 1970s, it was possible to recognise at least two new directions in ecological research: an emphasis on experimentation as a way to inject greater explanatory power to the discipline and a decision to make more explicit consideration of the spatial context in which ecological processes take place. This book is a compendium of the modelling products that result from the second of these conceptual reforms.

This book combines a set of approaches to enable the analysis of the distribution of organisms between environmental sites, which structure is based on levels of organisation. There are chapters for the distribution of individuals, aggregations, societies, subpopulations, populations, and species. Two chapters analyse the distribution at additional organisational levels: communities and genes. The analysis of the distribution of genes crosses the boundaries of the field of ecology, but their inclusion in this book illustrates how ecology distribution methods can be applied to other areas of knowledge. Two further chapters deal with the applications of distribution ecology to biodiversity conservation and animal production. The final chapter is for synthesis and conclusions.

This tiered organisation respects the way biology in general and ecology in particular have developed historically. The book aims to take an overarching view of all of the branches of ecology that embrace a spatial approach. Given that the scope of this book is very broad, it is not specialised in any particular ecological discipline or taxon.

This book is intended for advanced undergraduate and graduate students. Researchers of ecological science should not seek in this book to get deeper in their areas of expertise, but to find an occasion to frame their knowledge in a wide spatial-oriented approach. It can be also useful for researchers in other disciplines such

as population genetics, epidemiology, conservation biology, wildlife management, and range management.

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