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To my parents

Contents

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The work was done while I was working at various laboratories in succession. Professor Victor Westhoff, in fact, suggested that I take on the work, though at that time it was still intended for a series of Dutch texts. Later, Professor Marinus Werger, Professor Jan Koeman, and Professor Rudolf Prins stimulated me with their interest. The librarians of several institutes had a heavy task with obtaining the literature, and

Ruud Wegman again did a good job with drawing the figures. Finally, much time, energy, and material costs, otherwise available for family life, have been given to this book, thus making Claire's task even heavier than it normally would have been.

Apart from these more tangible conditions, my parents should be mentioned in a more general way, as they conditioned me intellectually. I feel that it is their combination of theoretical interest, practical inclination and skill, and humanistic idealism that has shaped me. To a great extent, it is their influence that has thus given rise to this book.

I hope that this book as the combined result is such that its users keep the impact of the help and stimulus of all these people just as much in mind as I do myself.

Preface

When my friend, Victor Westhoff, asked me some years ago if I would write a book on biogeography, I hesitated. Two reasons encouraged me to try: (1) frustration that biogeographical classifications are rarely interpreted, and that any such interpretations are not tested, and (2) realization that two papers with Jaap Haeck on the distribution of abundance within species ranges (Hengeveld and Haeck, 1981, 1982) could give a new perspective to many biogeographical phenomena. Working my way through several problems, I felt I had generally succeeded, until another friend, Colin Prentice, suggested adding a final chapter on what future biogeographical work I thought needed to be done. I realized I had not achieved my desired unifying interpretation. I started all over again!

This book is the result. It contains a general introduction to the methodology of biogeographical classification, and presents ideas about the dynamic structure of species ranges. I emphasize climate as a basis for explaining many biogeographical patterns; the book has an ecological bias, which many biogeographers might consider a drawback. I do not, but it is up to the reader to judge if I have been fair to other approaches. The book is very much a personal synthesis.

I do not give pure theory, nor burden the reader with formulae and their derivations. If my approach proves to be fruitful, such theory could be added later by others when sufficient data are available to test more refined models than is currently possible. I feel that existing knowledge about biogeographical patterns and processes does not justify any mathematical sophistication. My approach is based on the wealth of empirical data, old and new, concerning distributions of organisms. Dealing with statistical procedures for processing large data sets, I try to emphasize the reasoning behind data analysis and to avoid writing a 'cookery book' for solving individual problems. Covering a large part of the most significant

biogeographical problems means that many text figures and references had to be weeded out to keep the text within limits. I hope that my choice has not severely limited the possibility of checking my inferences and of further reading.

By concentrating on spatial biological processes, I try to unify some of the diverse and apparently unrelated phenomena within biogeographical research, and hopefully to clarify part of the present biogeographical scene, and to assist in devising sharper and more precise pictures.