
Preface

The two subjects in population ecology that have had the greatest appeal to me include some very general questions about the distribution and abundance of species and the more specific subject of dynamics of spatially structured populations. No doubt the years I spent collecting insects in my youth left a lasting impression. As an ecologist, I started with the causes and effects of small-scale patchiness in insect populations, but ever since I discovered metapopulations 20 years ago much of my research has been guided by this concept. This volume is my synthesis of metapopulation ecology, inspired especially by insects living in highly fragmented landscapes. Other ecologists would have arrived at different syntheses, for which there is both need and plenty of scope. Two alternative syntheses that are only cursorily touched in this volume are landscape ecology of organisms living in complex mosaic landscapes and a more theoretical approach unifying metapopulation ecology as presented in this book with other areas of population biology, such as epidemiological theory, which share similar conceptual and theoretical underpinnings.

Interest in spatial issues in population ecology, and in population biology more generally, has increased greatly in recent years. Several volumes have appeared that thoroughly cover many new and exciting theoretical advances in spatial ecology. In my own research, and in this book, I have attempted to maintain a close dialogue between models and ecological field studies. The theory and models that are described here do not represent the state of the art in mathematical ecology, and this book has not been written primarily for theoreticians. Similarly, my treatment of field studies might not always satisfy empirical ecologists. It is the combination of the two that should be considered; this book has been written for those ecologists who realize that it is the combination of theory and field studies that really matters.

Many colleagues have greatly contributed to the contents of this volume. Although I have never met Richard Levins, his writings have had a lasting influence on me. Conversations with Michael Gilpin in the autumn 1988 were important in deepening my interest in metapopulations. Collaboration with Mats Gyllenberg and Atte Moilanen during the past six years has been instrumental for the development of many ideas and models. Discussions and joint work with Chris Thomas have been

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