

Book reviews

Dispersal. J. Clobert, E. Danchin, A. A. Dhondt and J. D. Nichols (eds). Oxford University Press, New York. 2001. Pp. 452. Price £24.95, paperback. ISBN: 0-19-850659-7.

Dispersal is one of the most central concepts in ecology and evolutionary biology, and affects the ecology and distribution of individuals, populations and communities, as well as genetic differentiation, local adaptation and evolutionary persistence of populations and species. Despite this wide-ranging and long-recognised significance, the mechanisms and extent of dispersal are not well understood, in part because its measurement has traditionally presented considerable difficulties. Recent advances in ecological and genetic methods, and in the theoretical basis of computer models, however, now allow a more thorough and integrated approach to the investigation of dispersal. In this multi-authored book, Clobert *et al.* bring together population ecologists, molecular and quantitative geneticists, computer modellers, evolutionary biologists and conservationists, thus providing the basis for an interdisciplinary discussion of dispersal. It is this interdisciplinarity that makes the book a particularly valuable addition to the bookshelf, providing 'intellectual dispersal opportunities for an unusually broad range of ideas' (foreword by Peter Waser).

The book concentrates on reviews of specific aspects of dispersal, including its measurement, causes and mechanisms, and its evolutionary and applied significance, with a few interesting case studies illustrating pertinent points. The language in most chapters is sufficiently simple to allow non-expert readers an understanding and assessment of the topic, an important aspect in an interdisciplinary book. Extensive cross-referencing among chapters provides helpful links and aids the crossing of disciplinary boundaries. Perhaps the most useful features of the book are the conclusions in many (unfortunately not all) chapters, which not only summarise the information presented, but also point out gaps in knowledge and future research directions. The book therefore provides an outlook on potential developments in the field, a topic sadly missing in many other books and review papers.

Can *Dispersal* tell us everything there is to know about dispersal? Perhaps because of the wide coverage of disciplines and methods in the book, its scope of ecological systems and factors affecting dispersal is remarkably narrow considering the very general and non-descriptive title. As the editors state in their introduction, the inclusion of all aspects of dispersal would be far too ambitious, and under-representation of some taxa and systems is almost inevitable. However, the book concentrates very much on biotic factors affecting active dispersal, including condition, behaviour, intra- and interspecific competition, predation, parasitism and others. Much less consideration is given, for example, to features facilitating (e.g. currents, airflow etc.) or hindering (e.g. geographic barriers,

hydrographic fronts) passive dispersal, for example in many invertebrate and plant species. Given the extensive literature on marine dispersal, the shortage of examples from aquatic species, and factors affecting their dispersal is unfortunate. Furthermore, there is little discussion of how phylogeography and population history may affect extant patterns of genetic differentiation and thus estimates of dispersal. While such biases do not necessarily compromise the value of the book, a more specific title better describing its scope would have been useful.

On balance, I highly recommend the book for scientists who are interested in an integration of genetic, demographic and theoretical approaches, and who want exciting perspectives on the future in the field. However, people looking for an exhaustive review on all aspects of dispersal, especially in aquatic and plant systems, may be disappointed.

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Human Chromosomes (4th edn). Orlando J. Miller and Eeva Therman. Springer-Verlag, New York. 2001. Pp. 501. Price \$44.95, paperback. ISBN 0-387-95046.

This is a very timely and welcome revision of a well-known text. Its appearance at this time reflects the enormous changes that have taken place in the cytogenetics field due to the development and incorporation of molecular techniques in the study of chromosomes. This book concentrates on human chromosomes but will nevertheless have a wide appeal to all students of biological sciences and medicine. There are 31 chapters all individually referenced. Beginning with an extremely readable introduction and history of the development of human cytogenetics, the book then describes the structure and behaviour of human chromosomes at all cell stages and during mitosis and meiosis, and considers the various methods that can be used to observe human chromosomes. These sections cover both classical established methods of examining chromosomes and the more recent developments in molecular cytogenetics. The new material in this edition demonstrates how much this subject has changed in the last ten years. These authors have a wealth of experience and enthusiasm that shines through in the writing and enables them to describe these changes so well.

The scene is thus set to consider the consequences of abnormalities of human chromosome structure and behaviour and the contributions that these make to human disease. The latter half of the book discusses the consequences of