

PREFACE

Most scientists would agree that life on Earth is currently experiencing a rapid and dramatic transformation and re-sorting, reminiscent of some of the most dramatic events in the planet's history, such as the switches in and out of ice ages, biotic interchanges driven by the collision of continents, or the handful of massive and geologically abrupt past biodiversity collapses termed mass extinctions. All over the globe natural habitats are being transformed to suit the needs of the local human population or those of distant markets. Sometimes these changes are dramatic, such as the clearing of lowland rain forest to make way for pasture or crops. Other changes are more subtle but nonetheless have severe ramifications for the native ecology, such as the introduction of non-native species from widely distant land masses or water bodies. Moreover, these changes are taking place against a backdrop of global climate change, which has the potential to re-draw the geographic boundaries of many ecosystems.

The full consequences of the contemporary human-induced revolution in the Earth's biota remain to be seen, although many aspects of anthropogenic impacts are already on record and many further responses to these drivers seem inevitable. Numerous species have already become extinct and, in the absence of concerted efforts to prevent this, many more seem destined to follow them into oblivion.

Another seemingly inexorable process is the convergence of communities (especially where habitats have been disturbed) caused by the assisted transport of generalist species. Known as 'biotic homogenization', this process overwrites the local and particular species with, very often, the same sets of successful commensal species, many of which present very significant negative impacts on ecosystems and economies. Other consequences are harder to predict, such as the impact

of climate change on the make-up of communities, or even its influence on the geographic distribution of a particular species.

Ultimately, the degree to which human transformation of landscapes and ecosystems impacts on the diversity and distribution of life on Earth will be determined by the response of societies, organizations and individuals. However, to make rational informed decisions about where to invest conservation's limited resources (both taxonomically and geographically) requires an understanding of the principles, concepts and techniques of biogeography. Although the application of biogeographical theory to conservation problems has a long history, most notably in the design of island nature reserves, we have for some time felt that there was insufficient attention being paid to exploiting biogeographical information and knowledge in the practice of conservation and in the education and training of those intent on contributing to conservation policy and practice. The goal to develop teaching material with this focus was, therefore, an integral part of our plans for a new Master's programme in Biodiversity, Conservation and Management, taught in the University of Oxford, and in which several of our colleagues – contributing authors to this book – have also been involved over the last six years or so.

Encouraged by the interest in conservation biogeography evident within the mission statement (below) and membership of the recently formed *International Biogeography Society*, we set out to outline the aspirations, applications and limitations of the field in a prospective review paper published in 2005 in the journal *Diversity and Distributions – A Journal of Conservation Biogeography*. This paper, however, only gave the bare bones of a cohesive set of concepts and criticisms that define an important new perspective on global conservation.

Our aim in this book is therefore to expand the scope and agenda of conservation biogeography, to identify critical gaps and weaknesses, and to provide an introduction to the toolbox of concepts and methods – and thereby to produce a broad-based text for university courses and programmes. To this end, we have tried to provide a strong pedagogic structure, starting with the values and imperatives underpinning conservation that determine where and how biogeography can be used. Subsequently we develop the key concepts and frameworks before concluding with the application of biogeography to real world conservation problems.

To ensure adequate coverage of all of the most important areas of contemporary research and practice, we invited a number of colleagues, based at other universities around the world, to join with us in developing the first comprehensive textbook on conservation biogeography. Edited textbooks can often appear bitty and may lack cohesion, but it has been our great good fortune as editors that our colleagues in this venture have accepted with good grace – and, indeed, enthusiasm – our efforts to avoid such an outcome. Working within a pre-set structure, the author teams have developed, collaboratively, a text which we hope you, the reader, will find to be readable, coherent, insightful and comprehensive.

Biogeography is entering a period of innovation, growth and expansion, and it has been reinvigorated by its fusion with the younger, crisis-driven agenda of conservation science. We hope this book will contribute in a small way to attracting more students and established scientists to work in this newly emerging field, and we look forward with great interest and expectation to tracking the practical and conceptual development of the discipline in the coming years.

Finally, in furtherance of this goal, and together with our fellow contributing authors, we have pledged to

donate the royalties from the present work to the *International Biogeography Society*, which was founded as a non-profit organization in 2000 with the following mission:

- Foster communication and collaboration between biogeographers in disparate academic fields – scientists who would otherwise have little opportunity for substantive interaction and collaboration.
- Increase both the awareness and interests of the scientific community and the lay public in the contributions of biogeographers.
- Promote the training and education of biogeographers so that they may develop sound strategies for studying and conserving the world's biota.

For further information on the IBS visit <http://www.biogeography.org>.

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