book review

Bread, butter and marmite

Climate change impacts on freshwater ecosystems, by Martin Kernan, Richard W. Battarbee and Brian R. Moss (eds.)

Wiley–Blackwell, 2010, 328 pp. ISBN: 978-1405179133
Price: £45 (Hardback)
http://www.wiley.co.uk/

This book summarizes the outputs of Eurolimpacs, a major European Union (EU)-funded project which investigated the impact of global change on freshwater ecosystems. As the title of the book suggests, the focus is on assessing the impacts of climate change on lakes, rivers and wetlands. However, the breadth of the material covered here is greater. The book aims to quantify and model past and recent climatic impacts on freshwater ecosystems, but also to predict the consequences of future change. The book also covers the numerous problems such as contamination with pollutants and structural modifications that will influence potential responses of inland waters to climate change. The pervasive nature of such problems means that they must be considered in order to give useful insights into future climate impacts. The material covered thus more truly concerns global and environmental change than simply climate change. The scope of the project acknowledges the importance of considering processes at a catchment scale and thus some of the material considers how terrestrial responses translate into changes in water bodies. The policy implications for the work are also considered, with chapters covering implications for existing legislation (with a focus on the EU Water Framework Directive) and ideas for translating science into policy.

As might be expected of an EU-funded project, the majority of the work within this book concerns research in Europe. The geographical context is important because there is great diversity in climatic conditions across Europe which opens up possibilities for research (e.g. spatial comparisons), but also increases the challenge of mitigating and adapting to future change. Europe also has a long history of human disturbance, with some areas being intensely affected by anthropogenic change and others being relatively pristine. There are also barriers to dispersal of organisms across parts of Europe that will influence how species ranges adapt to climate change. The context in which climate change is being dealt with therefore varies spatially. Thus, although there has been a marked growth in research on climatic impacts on freshwater globally, there are good reasons to focus on Europe. As might be expected, European studies are placed into context by reference to literature from other geographical regions.

This book should attract a broad readership because of the range of subject matter covered. In contrast to similar books (e.g. George 2009) it deals with rivers, lakes and wetlands and therefore should appeal to a wider spectrum of freshwater scientists. It acknowledges the importance of anthropogenic stressors in chapters on hydrology and morphology (Chapter 4), eutrophication (Chapter 6), acid deposition (Chapter 7) and persistent organic pollutants and mercury (Chapter 8) and so should be of interest to researchers in these fields.

One of the interesting aspects of this book is that it includes a diverse array of methodological approaches. The scientific studies presented use long-term monitoring programmes, spatial surveys, palaeolimnology, experiments (from microcosm to ecosystem scale) and various modelling approaches across a broad range of scales. There are also chapters that may interest social scientists concerned with policy development and implementation (e.g. Chapter 11 – “Tools for better decision making: bridges from science to policy”). This combination of material creates a book that facilitates the cross-fertilization of ideas among subject areas and disciplines.

The presentation of this book is stylish, with

plenty of clear colour diagrams that would lend themselves well to undergraduate teaching. However, it is probably pitched at a level most appropriate to postgraduate students, expert practitioners, academic researchers, or to undergraduates doing research projects. There is good cross-referencing and linkage among chapters and thus, in contrast to some edited books, this reads like a coherent piece of work rather than a collection of individual chapters. One of the stand-out features of this book, though, is that the 'bread-and-butter' chapters are crowned with the final chapter ("What of the future?") written in uniquely flamboyant style by Brian Moss. This provocative chapter pools the thoughts and experience of experts in the field to take the reader on a journey through the climatic ecozones of Europe to imagine what the future will be like. The settings for this chapter are the River Erehwomos in the arctic/boreal ecozone, the River Gutflave in mid-continental latitudes, the island of Hibscotia representing peninsulas and islands and the River Graecerina in the Mediterranean region. The resulting chapter is limnological marmite. The descriptions of the future focus largely on the negative impacts of future warming and are likely to antagonise those optimists who advocate technological innovation as the answer to climate warming. However, the material in this chapter builds on a sound scientific base and when considered in the context of the error margins of some numerical models, there is no reason to consider that these models of the imagination are any less realistic a scenario. Whether you agree with the interpretation or not, this is a fun approach to science that makes the book all the more enjoyable.

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References

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Edited by Markus Eichhorn

book review

A truly colourful inter-continental tropical kaleidoscope

Tropical Rain Forests – An Ecological and Biogeographical Comparison (second edition), by Richard T. Corlett and Richard B. Primack

Wiley-Blackwell, 2011, 336 pp. ISBN: 978-1-4443-3255-1

Price: £55.00 (Hardback) / £34.95 (Paperback)

http://www.wiley.co.uk/

On Sunday 21 October 1492, Christopher Columbus wrote of the Caribbean Island that he calls "Cabo de Isleo" that

> "The trees are of many kinds, each with its own fruits, and all have a marvellous scent. It grieves me extremely that I cannot identify them, for I am certain that they are all valuable".

Columbus was no botanist but he paid attention to plants —he was keen to find the Asian spice trees he had promised to his sponsors. His diaries show his recognition that the plants of the West Indies were different to those in Africa and Europe.

As Columbus was aware, forest communities differ depending on their continental context. Far from being uniform formations, where valued resources known from one location such as the nutmeg, cinnamon and cloves of Asia can be anticipated in similar settings elsewhere, forests are diverse and their communities differ markedly with location. Observations from one site may or may not apply to another. Seeking Asian spice plants in Caribbean forests only seemed reasonable while these islands were judged to be Asia.

While few actually set out to argue that all tropical forests are similar it is often a default as-

