

## **Wetland Ecology: Principles and Conservation (2nd Edition)**

PAUL A. KEDDY (2010). Cambridge University Press, Cambridge, UK. 497 pp. ISBN 978-0-521-51940, price £75 (hardback), ISBN 978-0-521-73967-2, price £35 (paperback).

The first edition of this book is well known to wetland scientists and students and is a much-loved textbook. This new edition will also not disappoint, it is reorganised but retains a refreshingly relaxed (occasionally idiosyncratic!) and immensely clear style of writing while putting over complex ideas. Throughout the book, there is a personal feel to the text such that the reader can imagine that they are listening to a beautifully crafted lecture on each topic, receiving enough detail to feel well briefed while being provided with ample literature to look up more.

The book starts with an introduction that immediately sets out the importance of understanding flood regimes and then introduces the reader to wetland classification, always a tricky topic, which is sensibly kept to a minimum. The next three chapters deal with 'Flooding' (Chapter 2), 'Fertility' (Chapter 3) and 'Disturbance' (Chapter 4). Flooding regimes and their role in wetland formation and evolution are compared across different types of wetland. Wetland dependence on particular water level fluctuations are demonstrated through examples of wetland change that have occurred as a result of human interference with these fluctuations, for example downstream of dams. The chapter on fertility is excellent, and this issue is tackled across different spatial scales and in different types of wetland. Fertility and flooding are described as the two most important controls on wetland ecology. Many different types of disturbance are covered in Chapter 4; there is an emphasis on the duration, intensity, frequency and area affected as the main factors that determine the effects of disturbance on the community properties of wetlands. Here, and in some other parts of the book, a stronger emphasis on geomorphological processes would provide a useful complement to the biological detail. Chapter 5, on 'Competition', is a masterpiece of making the complex seem straightforward while acknowledging its complexity! 'Herbivory' is covered in Chapter 6, followed by 'Burial' in Chapter 7. The latter covers sedimentation impacts as well as peat growth. It might have been better placed next to Chapter 4 since sedimentation rates are inextricably linked with flooding regimes and there is a tendency to divorce the two when discussing their impacts on community properties of wetlands. Chapter 8 covers a host of 'Other Factors' including, salinity,

roads, logs and coarse woody debris, stream type and human populations, all factors considered important in explaining variance in wetlands but that did not fit neatly into the preceding chapters.

At this point, the book switches from causal factors to consequences. Chapters 9 and 10 cover 'Diversity' and 'Zonation', respectively, and are comprehensive, sophisticated and well argued. Chapter 11, 'Services and Functions', tackles the relatively new field of measuring and valuing wetland ecosystem services. It starts by discussing wetland productivity before tackling other chosen services such as climate regulation but recognises the many drawbacks both ethical and practical with this approach. Chapter 12 is entitled 'Research'. This is a very enjoyable and useful consideration of approaches to research in wetlands, immensely valuable for students and a useful reminder for established scientists. Chapters 13 and 14, the final two chapters, cover wetland restoration and conservation. The chapter on restoration provides a useful review of the literature but is disappointingly conservative in its scope, mostly covering ecological engineering to restore historically present communities. There is very little discussion of the restoration of flooding and sedimentation processes, a dynamic approach now strongly advocated for many floodplain wetlands, with its attendant reduced predictability of biological outcomes over space and through time but perhaps longer-term sustainability. In contrast, Chapter 14 on the conservation of wetlands returns to the theme of working with change and provides thought provoking sections on what kinds of change through time are natural or desirable. The section on protecting reserve systems, while covering ideas on core and buffer zones and linkages through the landscape, could also have included other landscape ecology principles of particular importance to wetlands such as wetland position in relation to hydrological catchment.

Overall, this is an excellent read and an essential tome on any wetland scientist's or student's bookshelf. I thoroughly enjoyed the use of literature from across many decades, giving due recognition to the many seminal studies in wetland ecology that pre-date electronic publications. On the other hand, fewer publications from the last 5 years probably reflect slow publication schedules.

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