

Book Review

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Prach K., Walker L.R. 2020. **Comparative plant succession among terrestrial biomes of the world**. Cambridge University Press, Cambridge, 399 pp., ISBN (paperback): 9781108460248 - £34.99, ISBN (ebook): 9781108561167 - \$36.00.

The temporal changes of vegetation have fascinated botanists and ecologists for more than a century and the study of these processes supported the emergence of important schools of vegetation and plant ecology (Hagen 2010; Prach & Walker 2019). The study of cyclical vegetation changes from year-to-year or the study of differences in establishment success of short-lived species by unpredictable changes in the abiotic conditions and weather labelled as fluctuation seems to be “very easy” compared to the study of succession (i.e. a rather long-lasting, more or less directional process of replacement of plant species and communities following a natural or anthropogenic disturbance).

While both the speed and direction of compositional changes are quite specific to site history and strongly influenced by the acting disturbance regime, local climate and species pool of the surroundings, a comparative overview of successional processes in different parts of the world is very timely. Aware of this need, world-leading eminent scientists of plant succession and restoration ecology found enough time to compile a book dealing with these aspects.

Prach & Walker’s book “Comparative plant succession among terrestrial biomes of the world” is divided into three parts. After a short introduction to the historical development of successional theory, the first part introduces each of the terrestrial biomes, including a short description of their physiognomy and distribution, macroclimate and seasonality, abiotic conditions, biota, natural disturbances and human impact. Each biome’s description is supplemented with a schematic map of its distribution. This section provides especially useful material for university teaching. In the second part, the authors introduce the 10 most important disturbance types in detail ranging, with increasing human influence, from completely natural (volcanos, glaciers, cyclones) to completely anthropogenic (clear-cuts, ploughing or mining). The authors tried to compare succession by disturbance types across biomes with a comparative analysis of change in vegetation patterns and ecosystem processes. One of the most valuable aspects of the book is that the authors analysed patterns and processes based on a huge number of case studies and available datasets from several decades and regions and tried to compare these datasets with each other to test theoretical considerations and findings from the literature. In the third part, the authors try to give an overview synthesis and introduction to the current state of succession research, but also provide guidelines and underline the crucial points where succes-



sional theory and research can support restoration of natural communities across series and biomes.

The book is supplemented with many in-text figures and tables which are highly informative and support well the understanding of the text. The book also has colour plates illustrating some vegetation types and successional pathways. I found, however, the layout of the colour plates very strange as they were arranged so that each half-page sized illustration was placed alone in a single page.

To sum up, it is a well-organised, very useful book with a very rich literature base (nearly one hundred pages of references included!). It provides a host of ideas that are very inspiring for research and a solid and up-to-date overview of the subject. It can greatly support teaching of specific subjects in vegetation and plant ecological theory. With clear links to practical restoration, it also provides a nice overview of how spontaneous succession may support, or in some cases delay/hinder restoration activities. By identifying gaps and areas for further research the authors clearly demonstrate, in agreement with Meiners et al. (2014) and my personal view, that succession research hasn’t reached its climax.

References

- Hagen, J.B. 2010. History of Plant Ecology. In *Encyclopedia of Life Sciences*. John Wiley & Sons, Ltd: Chichester, <https://doi.org/10.1002/9780470015902.a0003288.pub2>
- Meiners, S.J., Cadotte, M.W., Fridley, J.D., Pickett, S.T.A. & Walker, L.R. 2015. Is successional research nearing its climax? New approaches for understanding dynamic communities. *Functional Ecology* 29: 154–164.
- Prach, K. & Walker, L.R. 2019. Differences between primary and secondary plant succession among biomes of the world. *Journal of Ecology* 107: 510–516.

Péter Török, Hungary

molinia@gmail.com