

BOTANY

Plant Ecology: Origins, Processes, Consequences. Second Edition

By Paul Keddy. 2017. Cambridge University Press. 624 pages, 74.95 CAD, Cloth, 52.00 USD, E-book.

I was excited to be asked to review this book. In the middle of heavily revising my second-year introductory plant ecology course, I have been wanting for inspiration. Though we have never met in person, Paul Keddy has heavily influenced my academic career. His 2001 book *Competition* was a central influence on my Ph.D. work, particularly the sections on the intensity and importance of competition. While there is much to recommend in this revised plant ecology text book, in the end I came away disappointed.

I will start with the positives. First, and most important, this book is that rare find in the textbook world: an entertaining read. The personal anecdotes and historical digressions are well chosen and add colour and interest. The book is well organized for an instructor. Chapters are built around themes covering first the major biotic and abiotic mechanisms that influence individual plants, then population- and community-level processes. The book is greatly enhanced by the chapters that are not present: missing are the (often endless) chapters on biogeochemical cycles that dominate the first third of many introductory ecology textbooks. Instead, Keddy recognizes that most readers will already be familiar with topics such as elemental cycles, and all that is needed is a succinct summary focussing on important links to plants. Similarly missing is the traditional parade of biomes that invites the memorization of factoid after factoid. Rather, we are presented, only four figures into the book, with the plot first introduced by Whittaker relating the major global biomes to gradients in mean annual temperature and precipitation (p. 6, Figure 1.4). Time and again Keddy returns to that plot as topics such as ecophysiology, disturbance, and herbivory are raised. By the end the attentive reader can reconstruct the core features of any biome from the causal mechanisms. Features like this that invite thoughtful inquiry-based teaching and learning are the best aspects of this book.

Now to the negatives. While the book is entitled “Plant Ecology”, it could be perhaps better titled “Paul Keddy’s View of Plant Ecology”. While the book is marketed as a general textbook, it presents a biased and misleading view of our field. The examples draw far too heavily on Keddy’s own research, creating an imbalance in the topics covered and views presented. This is evidenced by 31 citations to work where Keddy is the lead author (and many more to his students’ and collaborators’ work), while other leaders in our field are rarely mentioned. There are, for example, only three citations to papers led by Tilman and two by Chapin. This trend extends to some sub-topic choices within the book. To cite only one example, two full pages are devoted to the theory of centrifugal community organization while the far more influential work by Grace on multivariate controls of diversity is relegated to only a single citation without comment. A second very significant problem with this book is the currency of the literature. There appears to have been little effort to update the literature between the first (2007) and the second edition. Keddy makes the excellent point that older examples remain valid and should not be discounted. In many cases he is right, yet science has moved forward in the last decade. This is particularly the case in fields where major progress has been driven by advancing technology. How is it acceptable, for example, that a section on mycorrhizae mentions the insights arising from next-generation sequencing only in passing, or that a section on ordination advises readers to consult sources from the 1970s and 1980s? When I see such examples in areas where I am intimately familiar with both the current and older literature, I am left questioning what I am reading in areas where I have read less deeply.

Would I recommend this book? For a Ph.D. student preparing for their comprehensive exam—yes. Keddy provides a broad and engaging summary of much of

the history of plant ecology, a perspective invaluable to an emerging scholar. Would I assign the book to an undergraduate course? No. While this book has much to offer the experienced reader, I fear that an introductory student will be left with an incomplete view of the science of plant ecology.

Literature Cited

Keddy, P. A. 2001. *Competition*. Second Edition. (Population and Community Biology Series). Chapman & Hall, London, United Kingdom.

ERIC LAMB

Department of Plant Sciences, University of Saskatchewan,
Saskatoon, SK, Canada