

information systems – this was the portion of the book of greatest interest to me. In particular, the sixth chapter on Neutral Landscape Models was the best explanation I have come across for the reasons one uses such models in quantifying landscape pattern.

Because my interests are primarily quantitative, after reading the first half of the book and being thoroughly satisfied by it, I wondered what there could possibly be left to say to fill the remaining half. The answer to this is: a thorough discussion of the landscape dynamics that lead to the patterns that we try to quantify and model. And I think that this in many ways is among the strengths of the book. Many individuals – myself included – tend to think of a landscape as something static to analyze with statistical tools and computer algorithms. In fact, one is often better served by first considering the underlying dynamics that affect a landscape – its pattern, composition, and effect on organisms that occupy it – and then trying to model those dynamics. The last half of this book is devoted to these issues and covers them very well.

Although I liked what was said in both half of the books, I must admit I wondered if the book would not have been better if the two had been reversed. In some ways it seems more intuitive to first read about landscape dynamics and then quantify/model them. This comment should be seen, however, as a bit of nit-picking because the book works quite well in its present order.

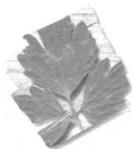
The only substantive negative comment I have – and I also consider this to be minor – is that all figures are in black-and-white in the book. However, because a CD-ROM with colour figures is included with the book, the gray-tone scheme of certain figures does not work well on the printed page. Because I am someone who does not want to sit by my computer when I read a book, I would have appreciated having either printed colour illustrations where necessary (with the obligatory book price increase), or gray-tone colour schemes that allow the book to be truly stand alone.

The book could serve a range of purposes. It will continue to be a useful reference for individuals such as myself who are experienced researchers. It could also be used to teach university-level courses both at the graduate and undergraduate levels; such a use of the book would be helped by the thoughtful Discussion Questions that are included at the end of each chapter.

In summary, this book represents a strong contribution to Landscape Ecology and is worth reading (or at least scanning) by anyone interested in that field. The authors are to be commended for writing such a thorough, well documented, and well considered book.

Kim Lowell

CENTRE DE RECHERCHE EN GÉOMATIQUE
UNIVERSITÉ LAVAL, STE-FOY,
QUÉBEC G1K 7P4 CANADA
E-MAIL: KIM.LOWELL@SCG.ULVAL.CA



WEIHER E. & P. KEDDY, 2001. Ecological Assembly Rules: Perspectives, Advances, Retreats. Cambridge University Press, xii + 418 p., 15 × 23 cm, paperback, US\$37.95, ISBN 0-521-65533-1.

Community ecology is, broadly speaking, the study of more than one organism at scales ranging from the quadrat to the landscape. In the hierarchy of ecological subdivisions, it is somewhat larger in scope than population biology, nested within landscape ecology and macroecology, and historically orthogonal to ecosystem ecology. This precis masks the introspective tone of some of community ecology's most famous practitioners: "[i]ndeed, Pianka...observ[ed]...that 'community ecology has for too long been perceived as repugnant and intractably complex'" (p. 1). The editors suggest

that this perceived "agony" of community ecology is self-inflicted – a reflection of "unending political and emotional conflicts rather than debates using rational criteria" (p. 2). This tone, which characterizes both Keddy's introduction and his epilogue, makes these two chapters the weakest parts of an otherwise strong volume. It is not surprising, however, as Keddy himself participated extensively in the introspective debates of the 1990s. In the hope of emerging from the morass of criticism-self-criticism that they feel pervaded community ecology in the 1980s and 1990s, Weiher and Keddy organized a symposium on assembly rules at the Ecological Society of America's annual meeting in 1995, and this volume is the set of papers from this well-attended symposium.

I was just beginning graduate school in 1982, and the often acrimonious discussions between Jared Diamond (who originated the term "assembly rules", but not the underlying concept, as Barbara Booth and Douglas Larson illustrate in their exemplary chapter) and Michael Gilpin on the one hand and Dan Simberloff and Ed Connor on the other were in full swing. Unlike the editors and the other greybeards of community ecology referenced in the introduction (Pianka, Lewontin, Peters, Scheiner), who apparently viewed the discipline of community ecology as a snake-pit of tenured faculty wiling away the hours in self-absorbed mental gymnastics, I saw graduate students, post-docs, and younger faculty working hard to test well-formed hypotheses that generated testable predictions. We viewed the debates about assembly-rules as much ado about very little, and with a well-informed historical perspective on the literature, were able to glean the valuable kernels of insight from the obfuscatory chaff surrounding them. Fortunately, in assembling the participants for the symposium and the contributors to this volume, Weiher and Keddy were able, for the most part, to identify individuals with similar harvesting skills.

The book is organized into two sections. Part I, *the search for meaningful patterns in species assemblages*, retraces familiar ground in seven chapters. First, Barry Fox rehashes his guild assembly rules, Simberloff, Lewi Stone, and Tamar Dayan critique Fox, but offer little new guidance, and Doug Kelt and Jim Brown offer support to Fox, while sidestepping Simberloff *et al.*'s critique. Of these three first chapters, Fox's is the most readable, and offers a clear historical exposition of the debate, while Kelt and Brown illustrate that gathering real data is better than reworking software. Similarly, Julie Lockwood and co-authors Michael Moulton and Karla Balent highlight the value of data in a cleverly designed study looking at invasibility of birds on islands and use good historical information to reconstruct assembly rules. Martin Cody does an excellent job combining extensive natural history data with careful analysis of island floras and scrub, woodland, and forest birds to generate meaningful assembly rules in these habitats. But far and away the best chapters in this section are those by J. Bastow Wilson on assembly rules in plant communities, and by Barbara Booth and Douglas Larson on the conceptual history of assembly rules and an example from plant assemblages along the Niagara Escarpment.

In a densely written chapter, Bastow Wilson covers assembly rules based on presence or absence of species, relative abundance, and functional characteristics. He also discusses appropriate and inappropriate uses of null models (with an unnecessary recapitulation of his previously published critique of Fox). Despite the depth of the chapter, however, Bastow Wilson is reluctant to actually state an assembly rule for any of the plant communities he describes. Booth and Larson, in their comprehensive review of the history of assembly rules, illustrate that this theory really is old wine in new bottles, and use this perspective to their advantage in their experimental framing of assembly rules for plant communities dwelling on cliffs. They also point out, I think correctly, that "communities in unproductive, stressful environments are more likely to be predictable and therefore are good systems to use for preliminary investigations of assembly rules" (p. 207). This prescription is an excellent one for the discipline, but it has been heeded rarely.

The second part of the book offers seven chapters under the rubric of *other perspectives on community assembly*. Unlike the first part, in which the chapters are integrated well and inform each other, the chapters in part II are a hodgepodge. James Drake, Craig Zimmermann, Tom Purucker, and Carmen Rojo attempt a general framework on the operation and mechanics

of community assembly, but their theoretical construct is overwhelmed by inchoate jargon and overused buzzwords (e.g., “a robust theory of complex systems, self-organization and the creation of emergent order” [p. 248]). Weiher and Keddy’s contribution, along with that of Sandra Díaz, Marcelo Cabido, and Fernando Casanoves, focus on trait-environment linkages, an alternative approach that has not been the traditional focus of theoretical development of assembly rules. Mark Lomolino expands on the equilibrium theory of biogeography, and his chapter is noteworthy for considering predation, in addition to competition. Similarly, Elizabeth Strange and Theodore Foin look at assembly in a broader context, considering both abiotic controls as well as interspecific interactions among stream fish. Finally, in her second contribution, Julie Lockwood with co-author Stuart Pimm, discusses the application of assembly rules in the service of ecological restoration. This chapter, which illustrates that most restoration projects succeed at best partially, points clearly towards a key future direction for community ecology.

Overall, the editors have succeeded in putting together a valuable collection of papers focused on assembly rules, and this volume should serve as the benchmark for future work in this field. Now that it has been published in paper, it is affordable not only by libraries, but also by the next generation of community ecologists.

Aaron M. Ellison

*DEPARTMENT OF BIOLOGICAL SCIENCES
MOUNT HOLYOKE COLLEGE, SOUTH HADLEY
MASSACHUSETTS 01075-6418, U.S.A*

