

Food Webs at the Landscape Level

Gary A. Polis, Mary E. Power and Gary R. Huxel
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ECOLOGICAL theory generally and food web theory in particular has traditionally focused its attention on "closed systems". This creates an obvious catch-twenty-two: while this simplified approach has been a useful opening gambit in trying to unravel the incredible complexity inherent in ecological systems, it is almost never the case in real life. Therefore, it has often been difficult to apply basic ecological theory to real-world situations, or even to know how to start.

The nice thing about this book is that, in terms of ecological theory, it picks up where third-year undergraduate ecology left off. It might deservedly be subtitled, "All the things you always wanted to know about ecological theory but wish you had thought to ask!" By dealing specifically with the fluxes between ecosystems, it builds on the original "special cases" to formulate effective, intuitively reasonable explanations of how they might relate to the real world, and what additional assumptions might be necessary to make them work. In chapter after chapter, it extracts from the corners of the reader's mind those half-formed, subconscious questions we did not realize we were asking about ecological theory — and provides some of the best answers I have yet heard.

This volume contains 26 chapters, organized into five parts along the theme of gradually increasing landscape scale. The methods used to answer the questions posed vary from the purely theoretical to the strongly empirical, and include several chapters based around a particular research team's own work, as well as a good proportion of more broad-ranging literature reviews. This mix of approaches works well to give the reader both a broad understanding of the importance of subsidies on a global scale and an

appreciation of the subtle complexities inherent at the local level of, for example, a single catchment or group of islands.

General readability is very good, and the writing style is clear. Several of the more theoretical chapters rely on the reader following an argument through a series of quite complicated mathematical models. This makes those chapters somewhat more difficult to wade through, although usually the point that is being made is illuminating enough that it is well worthwhile persisting with them.

There is a strong aquatic theme to this book. About half of the chapters focus specifically on aquatic systems or the fluxes between terrestrial and aquatic systems, and several of the others spend some time discussing them. The aquatic focus is probably due, at least in part, to the ease of identifying the origin of subsidy materials from strongly-contrasting systems and thereby quantifying the fluxes between them. It means that this book is perhaps more immediately applicable to people researching aquatic ecosystems. However, in keeping with the strong emphasis on general ecological theory, systems have often been chosen as "model systems" to investigate a hypothesis or illustrate an argument with much broader applicability.

I am an early-career researcher, and this is not my primary field of research. Some of the ideas put forward in this book may be less novel to those more closely involved with food web ecology — however, I believe that, while this book functions as an excellent introduction to the subject, it is still sufficiently detailed to make it a useful addition to the bookshelves of more senior researchers in the area. I would also recommend it as a useful source of raw material for undergraduate courses in ecology.

This remarkable book bears a dedication to the late Gary A. Polis, who championed the field of landscape-level food-web ecology, but who died in a tragic accident before this book could be completed. His colleagues, Power and Huxel, have completed it in his memory, and they have done well. The body of work and the scale of professional influence which this book represents would be an enviable legacy for anyone.

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