enies. This is also true of his assertion that advanced maniraptorans, such as *Velociraptor*, were secondarily flightless, an idea not generally accepted.

Despite these relatively minor problems, I thoroughly enjoyed this book. It represents the most comprehensive collection of scientifically informed dinosaur anatomical illustrations to date, making it a valuable desk reference. One can imagine taking a trip back to the Mesozoic and using this guide to identify these awe-inspiring creatures. This volume should find a proud place on the bookshelf of both amateurs and professionals.

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ECOLOGY

Trophic Cascades: Predators, Prey, and the Changing Dynamics of Nature.

Edited by John Terborgh and James A. Estes. Washington (DC): Island Press. $90.00 (hardcover); $45.00 (paper). xx + 464 p.; ill.; index. ISBN: 978-1-59726-486-0 (hc); 978-1-59726-487-7 (pb). 2010.

A trophic view of nature, with primary producers (green plants) at the bottom, herbivores, and carnivores at the top, begs the question of how such communities are organized. Beginning in the 1960s, two camps formed among ecologists: one argued that the presence of carnivores keeps the world green (by keeping populations of herbivores in check); alternatively, by being the primary source of energy, and through the evolution of defense against herbivory, plants were argued to control ecological communities from the bottom-up. Robert Paine introduced the term *trophic cascade* to describe the former process in 1980 and, ever since, much research effort has been invested and ink spilled over the debate.

This edited volume brings together 21 chapters, written by leading empiricists and theoreticians. Indeed, the author list is very impressive, spanning experts on diverse ecosystems, organisms, and concepts. The pressing questions addressed by the contributors include: what factors determine the strength of trophic cascades, and what are the implications of trophic cascades for environmental conservation? In particular, top predators have been exterminated, overfished, or otherwise removed from many of the world's ecosystems. The book is successful in bringing together syntheses and case studies on trophic cascades, especially focused on landscape- and ecosystem-level impacts of removing carnivores. Despite being familiar with much of this literature, I learned a lot from the volume and the community ecology presented is first rate.

Perhaps somewhat underrepresented in the book is smaller scale, mechanistic approaches to understanding how specific plant traits mediate trophic cascade strength. After all, it is not top-down or bottom-up, but some interaction between the two. Nonetheless, many other important and novel drivers of trophic cascades (e.g., animal behavior) are well represented in many chapters.

My favorite chapters were those in the second half of the volume, which either pushed the frontier by linking case studies to specific sets of predictions, or took a passionate stand on the links between trophic cascades and conservation. In particular, the chapters by Schoener and Spiller and Shurin et al. made strong conceptual contributions. The final two chapters (Soulé; Terborgh and Estes) are fervent essays, making a strong case for why our degraded planet needs protection and restoration of carnivores.

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An Introduction to Mathematical Models in Ecology and Evolution: Time and Space. *Second Edition. Ecological Methods and Concepts.*

By Michael Gillman. Chichester (United Kingdom) and Hoboken (New Jersey): Wiley-Blackwell. $144.95 (hardcover); $84.95 (paper). vi + 158 p.; ill.; index. ISBN: 978-1-4051-9489-1 (hc); 978-1-4051-7515-9 (pb). 2009.

The use of mathematical models in population biology has been steadily increasing since the 1960s. At the same time, population biologists seem to be diverging into quantitative and less quantitative lineages. This is not good for the health of the broader disciplines, so introductory textbooks serve a more important purpose than ever before. The past decade has seen the publication of many introductory modeling volumes aimed at ecologists and/or evolutionary biologists. One recently published work is this short textbook by Michael Gillman. It is the second edition of a work originally published in 1997.

The volume assumes very little in the way of mathematical training. It is centered around basic models and techniques used in population biology, with brief treatments of stochastic, age-structured, and density-dependent models of single populations, as well as the most commonly used models two-species interactions. The final two chapters give short accounts of some multispecies and spatial models. In general, the explanations are clear and the book would be suitable for a modeling section in a year-long, undergraduate, advanced ecology