tation has been used to provide revenue to local people and in turn encourage habitat protection. They conclude that this concept can work. Sanderson considers the political dimension of conservation.

The final chapter in this volume is by Robinson, who considers the issue of sustainable use as a conservation measure. He considers three objectives—species conservation, ecosystem health, and human livelihood—and suggests indicators of sustainable use as well as general approaches to satisfying these objectives.

Overall, I would like to have seen more emphasis on two topics, ecosystems and institutions. How ecosystems respond to exploitation is the most pressing biological question, yet most of the chapters continue the traditional emphasis on single species. Thus, this book is an interesting study in contradictions. Whereas several chapters emphasize the potential for exploitation as part of a conservation strategy, others emphasize the threats of exploitation. This contradiction is one of the most interesting features of the book. Even more important, in my view, are the institutional structures that guide exploitation. Sustainability is primarily a result of institutions much less than of biology. The editors are to be commended for including two chapters on institutions. I only wish there had been more.

Ray Hilborn

School of Aquatic and Fishery Sciences, University of Washington, Seattle, WA 98195, U.S.A., email rayh@u.washington.edu

Un Compendio de Ecología Forestal

Ecología y Conservación de Bosques Neotropicales. Guariguata, M. R., and G. H. Kattan, editors. 2002. Libro Universitario Regional (EULAC-GTZ), Cartago, Costa Rica. 692 pp. $35.95. ISBN 9968–801–11–9.

Este volumen es la realización de un sueño de los editores de producir un texto para capacitar a las nuevas generaciones de latinamericanos en ecología forestal neotropical. Decir que este libro tendría buen éxito en dicha meta es insuficiente. Es un excelente tratado, bien actualizado, de ecología forestal neotropical. Ecólogos tropicales no hispanohablante sufrirán por no poder aprovechar este recurso. Aunque los contenidos del libro se encuentran en varios lugares en la literatura científica, el libro provee una visión general y completa en una sola obra.

Este volumen está organizado en seis secciones y vienticuatro capítulos. Los editores reconocen la heterogeniedad de un texto con cincuenta autores y casi 700 páginas. Algunos temas complejos, por ejemplo la coexistencia de las especies, se tratan varias veces en capítulos diferentes debido a las intrincaciones del material, y el lector se beneficiaría por tratar con los conceptos desde diferentes puntos de vista. Un tema recurrente son los varios efectos de la actividad humana en los bosques. En particular, un capítulo indispensable escrito por Diana C. García-Montiel trata el tema la ecología histórica y el legado de la actividad humana en bosques neotropicalescontemporáneos. La primera sección, titulada "El bosque neotropical: pasado y presente" sirve como fundamento para el resto del libro. El énfasis de esta sección es una vista dinámica con varias escalas espaciales y temporales. Asi se debe eliminar la perspectiva estática de comunidades estables sin pertubaciones. La segunda sección trata con interacciones entre la vegetación y la luz, el agua, y los nutrientes. Juntos, las dos primeras secciones forman una visión unificada de los factores que determinan los patrones de diversidad y estructura de bosques neotropicales húmedos y lluviosos.

Las próximas dos secciones intentan integrar los niveles de organización genética, poblacional, y de la comunidad. Sin embargo, los capítulos componentes no están bién ordenados. Los temas son varios: la adquisición de carbono en las plantas, la ecología de epífitas y las hemiepífitas, la regulación de poblaciones de mamíferos. La integración de tales diversos temas habría sido un objetivo ambicioso, pero juntos con la quinta sección en interacciones planta-animal, estas 300 páginas constituyen un valioso tratado de ecología para estudiantes y una fuente de referencia muy útil para investigadores. Los tópicos incluyen ecofisiología, dinámica poblacional y de la comunidad, y la importancia de interacciones microorganismo-planta, polinización, herbivorismo, y frugivoría. Dado el complejidad de la información, los editores lograron un balance entre el texto, las figuras, y las tablas. Los gráficos y tablas complementan el material escrito, lo cual es excelente en general, mientras que cada capítulo contiene amplias referencias de la literatura ecológica para los que deseen más detalles.

No obstante algunos párrafos sobre los efectos de las pertubaciones humanas en varios capítulos, el énfasis del libro es la ecología de bosques neotropicales. La sexta sección es titulada "Efectos ecológicos de la influencia humana contemporánea" y contiene capítulos sobre fragmentación y extinción de especies, sucesión secundaria, y teledetección del bosque. Algunos lectores sentirían, por lo tanto, que el tema de conservación de bosques neotropicales no es suficientemente discutido. Los capítulos de la sección final, escritos por los editores y otros, complementan bien las 550 páginas anteriores, pero en resumen el libro trata principalmente sobre la ecología de bosques, y, en menor medida, la conservación de los mismos. Realmente ésta no es una gran deficiencia porque el libro notablemente logra su meta de ofrecer una visión general del estado del conocimiento de la ecología de bosques neotropicales húmedos y lluviosos. Los editores declaran un deseo de facilitar el aprendizaje y la enseñanza de ecología tropical por parte de la audiencia latinoamericana,

y se espera que este libro sea divulgado extensamente. Ecología y Conservación de Bosques Neotropicales provee mucha información esencial para biólogos conservacionistas. A lo mejor un esfuerzo posterior que podría complementar este libro excelente se titularía *Conservación y Manejo de Bosques Neotropicales*.

William T. Grauel

College of Natural Resources and Environment, University of Florida, 103 Black Hall, Box 116455, Gainesville, FL 32611–6455, U.S.A., email bil@ufl.edu

Evolutionary Ecology: Integrating Theory, Technology, and Ecology

Evolutionary Ecology: Concepts and Case Studies. Fox, C. W., D. A. Roff, and D. J. Fairbairn, editors. 2001. Oxford University Press, New York. 423 pp. $45.00 (paperback). ISBN 0–19–513155–X.

Evolutionary ecologists seek to answer questions on selection, life-history strategies, trade-offs, dispersal, and mating systems by combining classical ecology, evolutionary theory, and molecular techniques. Recent advances in molecular genetic technology have much to contribute to our understanding of ecological and evolutionary processes. By integrating these disciplines, biologists are developing new approaches to understanding the diversity of life.

The edited volume *Evolutionary Ecology: Concepts and Case Studies* provides an overview of theoretical, empirical, and applied advances in this diverse field. The text includes 28 contributions from leading scientists in the fields of quantitative genetics, population genetics, life history, population ecology, and conservation. Its five sections explore recurring themes in evolutionary ecology, life histories, behavior, coevolution, and adaptation to anthropogenic change. All chapters follow a similar format, whereby an introduction to theoretical predictions is followed by specific examples, case studies, and future directions. The editors intended this text as introductory material for contemporary research programs and as an alternative to readings from primary literature in advanced ecology courses and graduate seminars. Because the contributing authors are leading researchers in their respective fields, readers will benefit from this unique combination of subject breadth and expertise.

One of the strengths of the book is that the chapters are well integrated; authors frequently make reference to other chapters when appropriate, and topics are organized such that each chapter builds on the last. Additionally, most of the case studies are recent and provide current insights into the field. Authors emphasize the need for future work in unexplored areas, providing valuable ideas for students considering a career in research. A good example of these qualities and a high point in the text is Lively's chapter on parasite-host interactions, which thoroughly covers all the key theories on this topic, uses compelling empirical data, and is written in a manner accessible to most biologists.

Shortcomings of the book are merely the limitations of one of its greatest strengths, the multiauthored format. For instance (as the editors warn), the book is somewhat fragmented. The levels at which the different chapters are pitched and the depth of treatment of each topic varies widely from chapter to chapter. Many contributions lack adequate introductory and background information for undergraduate biologists. For example, Pigliucci's chapter on phenotypic plasticity may be out of reach of students without prior exposure to quantitative genetics. Also, Roff's chapter on age and size at maturity is overly dependent on modeling and lacks verbal explanation of some concepts. In addition, authors appear to have been given free reign to review their own research. Although this strategy does allow each author to describe what he or she knows best, a single research program is necessarily limited in scope. In some cases, topic discussions may have benefited from reviews of a wider range of empirical examples.

The final section of the book, "Adaptation to Anthropogenic Change," is devoted to applied contributions of evolutionary theory to management and conservation decisions. The emphasis on practical applications of theoretical predictions aids the reader in comprehending abstract concepts and demonstrates that the study of evolutionary ecology is not purely academic, but provides understanding of issues ranging from horticulture to conservation.

Included in this final section is a chapter by McKenzie on pesticide resistance that depicts the effects that complex interactions of pest genotypes, allelic dominance, and pesticide concentrations may have on the evolution of pesticide resistance. McKenzie describes how partial dominance at a resistance gene and pesticide concentration may have been instrumental in accelerating the onset of resistance to the pesticide dieldrin in the Australian blowfly. This example nicely illustrates how population genetic theory may make valuable contributions to the design of effective management strategies.

The chapter on pesticide resistance is followed by another management-oriented topic, biological control of invasive species. The author, Myers, discusses the importance of host specificity of biocontrol agents and the lack of resistance of the target host species to rare or novel parasites. Although the chapter provides insightful information on strategies for predicting the outcome of biocontrol attempts, the overall tone is not sufficiently cautionary, considering the potential hazards inherent in the release of exotic biocontrol agents.

In the last chapter, "Evolutionary Conservation Biology," Hedrick ties together the various strands of the