

## Understanding Tropical Forests

Author: HARTSHORN, GARY S.

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# Understanding Tropical Forests

GARY S. HARTSHORN

**B**iologists visiting Portland, Oregon, always try to budget some serious browsing time at Powell's City of Books. When I had the good fortune to move to Portland a couple of years ago, several colleagues told me I would love Powell's, and indeed it has become one of my favorite indoor haunts. With over one million books displayed in more than 3500 sections on 68,000 square feet of floor space, attracting an average of 6000 visitors each day (and 80,000 each day online), Powell's is a world-famous source of books—used, new, and out-of-print rarities. For example, I had long ago given up on replacing my cherished but “disappeared” copy of Record and Hess's classic volume *Timbers of the New World* (1943), but within a couple of months of placing a request with Powell's, I obtained a near-mint book. Powell's 56 feet of shelves displaying books on forestry and 48 feet of books on trees inspired this essay on a selection of books on tropical forests published in 2005.

Editors Eldredge Bermingham, Christopher Dick, and Craig Moritz offer the heftiest (745-page) tome, entitled *Tropical Rainforests: Past, Present, and Future*. As is typical of edited volumes, this book grew out of a conference organized in 1998 to showcase the Australian wet tropics. Nine chapters of the book are dedicated to the Australian wet tropics, which are quite different from other tropical forests. For example, the Australian forests have a preponderance of primitive Gondwana tree species, and do not have the tremendous conversion pressures from land-hungry rural people that are so common in developing countries. The editors not only asked the initial contributors to update their papers, they also invited several well-known experts to write complementary chapters on tropical rainforests in Africa, in Amazonia, and on Panama's Barro Colorado Island. Sixty-three scientists from nine countries contributed to this edited volume. I highly recommend the book's final section, “Rainforest Futures,” which includes an introductory overview by the editors and chapters on the conservation of vertebrates (Moritz and McDonald); on parks, people, and policies in Southeast Asia (MacKinnon); and on the future of the Amazon (Laurance et al.).

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In *Tropical Rain Forests: An Ecological and Biogeographical Comparison*, Richard Primack and Richard Corlett make a convincing case that tropical rainforests in the five principal ecoregions have major differences that must be taken into account both for setting research priorities and for addressing local, regional, and national conservation objectives. Graduate students taking tropical field courses or looking for possible research projects will find this book a stimulating source of comparative ecological information and research questions. It would also be an excellent text for a graduate-level course in tropical ecology. This may become the most important book on tropical forests published in the first decade of the 21st century.

Let me point out that I agree with Primack and Corlett's thesis that there are major ecoregional differences among tropical forests, yet most of these biodiversity-rich and ecologically complex ecosystems face the same vexing prob-

lems, such as deforestation and slash-and-burn agriculture, as well as the daunting quest for sustainable development options.

Thomas Rudel's slim book, *Tropical Forests: Regional Paths of Destruction and Regeneration in the Late Twentieth Century*, offers an insightful meta-analysis of economic, environmental, and social forces affecting tropical forests since 1980. The author uses regional, mesoscale analyses to offer shortcuts to policymakers. For example, globalization may increase logging pressure in forest-rich regions, while reducing pressures from resource extraction in forest-scarce regions, thus facilitating the establishment of young secondary forests in the latter. Rudel concludes that regionally differentiated policies and criteria for success should focus on the “art of the possible” in setting conservation priorities. The bulk of the book is devoted to regional overview chapters for Central America and the Caribbean, South America (Amazon), West Africa, central Africa (Congo), East Africa, and South and Southeast Asia.

Logging in tropical forests continues to be controversial. Erik Meijaard and colleagues have published an excellent treatise on the subject in *Life after Logging: Reconciling Wildlife Conservation and Production Forestry in Indonesian Borneo*. This unusual book, available online at [www.cifor.cgiar.org](http://www.cifor.cgiar.org), brings together a lot of previously unpublished or inaccessible information about Bornean forest ecosystems. After two brief introductory chapters about the Malinau District of

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Gary S. Hartshorn (e-mail: [ghartshorn@worldforestry.org](mailto:ghartshorn@worldforestry.org)) is president of the World Forestry Center, Portland, OR 97221. © 2006 American Institute of Biological Sciences.

East Kalimantan, the book's 14 chapters are grouped in four sections: "Literature Review," "Analysis," "Management," and "Research." *Life after Logging* is thorough (especially in its discussion of vertebrates), comprehensive, and relevant to much of the tropics. The book's primary thesis is that logged forests have important conservation value because many (although not all) vertebrate species can persist in the degraded forests. The authors demonstrate that it is possible to assemble enough ecological information about an extensive tropical forest landscape to make predictions about the potential impacts of different development scenarios. I found the chapter on implications for forestry and concession management especially valuable. The book offers clear objectives, good summaries, important recommendations, and several useful appendices.

The quest for sustainable alternatives to the slash-and-burn destruction of tropical forests has become an important conservation concern over the past 15 years. Despite valiant efforts and many initiatives, slash-and-burn agriculture continues to be the primary cause of tropical deforestation. *Slash-and-Burn Agriculture: The Search for Alternatives*, edited by Cheryl Palm and colleagues, is an important synthesis of the research arising from the 1992 creation of the Alternatives to Slash and Burn (ASB) consortium of more than 40 organizations from the tropics. The ASB consortium brought fresh thinking and new approaches to tackling the global environmental challenge of tropical deforestation. This book's 18 chapters, grouped in five

sections, represent contributions from 79 scientists of 26 nationalities. Its primary theme is smallholder agriculture at the forest margin, which its authors address using case studies from Brazil, Cameroon, Indonesia, Peru, and Thailand. Unfortunately, numerous misspelled scientific names, and small, poorly reproduced maps, detract from the book's important contributions.

Tropical forests are attracting considerable attention from scientists and activists interested in global change, because of the vast quantity of carbon stored in tropical forest ecosystems and released to the atmosphere by slash-and-burn methods of land clearing. *Tropical Forests and Global Atmospheric Change*, edited by Yadvinder Malhi and Oliver Phillips, addresses the question, "What will (any remaining) mature old-growth forests look like at the end of the century?" Its 18 chapters, distributed among four sections, include contributions from 74 authors from 16 countries, with a strong representation from Latin America. The book's focal time frame is the last four decades of the 20th century. The second editor, Phillips, is a leader in conducting regional and pantropical analyses of tree growth and standing biomass of old-growth forests, which indicate higher turnover rates for many tropical forests, faster tree growth, and structural changes. The editors are to be commended for inviting authors whose approaches and conclusions differ—the result is several stimulating chapters. For example, Chambers and Silver conclude that "observed changes in tropical forest inventory plots over the past few decades are more

likely being driven by changes in disturbance regimes, and other environmental factors, than by a response to elevated CO<sub>2</sub>" (p. 57).

Not all readers will have the advantage of living near Powell's City of Books. But those who want to update their knowledge of tropical forests and the mounting pressures they face—and learn the current thinking about possible management solutions—would do well to read some of these worthwhile volumes.

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