

The text that follows is a PREPRINT.

Please cite as:

Fearnside, P.M. 1998. "Tropical Forest Remnants: Ecology, Management and Conservation of Fragmented Communities" edited by W.F. Laurance and R.O. Bierregaard, Jr. Environmental Conservation 25(2): 175.

ISSN: 0376-8929

Copyright: Cambridge University Press

The original publication is available at <http://journals.cambridge.org/> [<publisher link>](#)

REVIEW OF:

TROPICAL FOREST REMNANTS: ECOLOGY, MANAGEMENT AND CONSERVATION OF
FRAGMENTED COMMUNITIES. Edited by W.F. Laurance and R.O.
Bierregaard, Jr. (University of Chicago Press, Chicago & London,
1997). 616 pp. ISBN 0-226-46898-4 (cloth); 0-226-46899-2 (paper).

Philip M. Fearnside
National Institute for Research
in the Amazon-INPA
C.P. 478
69011-970 Manaus-Amazonas
BRAZIL

for: Environmental Conservation

11 December 1997

REVIEW OF:

TROPICAL FOREST REMNANTS: ECOLOGY, MANAGEMENT AND CONSERVATION OF FRAGMENTED COMMUNITIES. Edited by W.F. Laurance and R.O. Bierregaard, Jr. (University of Chicago Press, Chicago & London, 1997). 616 pp. ISBN 0-226-46898-4 US\$105.00/UK pounds 83.95 (cloth); 0-226-46899-2 US\$38.00/UK pounds 30.50(paper).

This book makes a substantial contribution to the literature on the ecological effects of cutting tropical forests into isolated patches. Based on a symposium held at the 1995 Ecological Society of America meeting in Snowbird, Utah, the volume presents 33 chapters in 616 pp. Brazil (9 chapters) and Australia (8 chapters) receive the greatest coverage, but the volume also includes work on Madagascar, Singapore, Hong Kong, Thailand, Costa Rica, Panama, Puerto Rico, Andean South America, and the Mascarene Archipelago in the Indian Ocean. Obvious lacunae include continental Africa and Indonesia/Malaysia. Papua New Guinea receives only a passing reference.

T.C. Whitmore provides a valuable review of the deforestation estimates compiled by the Food and Agriculture Organization of the United Nations (FAO), including correction of errors in the earlier versions of the FAO assessment for 1990 and clarification of several key terms left undefined in the FAO reports. Whitmore also reviews the impact of logging on tropical forests, and asserts that "the agenda for campaigning organizations should now shift in focus to advocating sustainable logging" (p. 11). I hasten to point out that 'sustainable logging' is a controversial subject and that strong arguments exist leading to the opposite conclusion. However, 'sustainable logging' is not the subject of the present volume, and neither Whitmore nor the other authors present arguments to substantiate a policy conclusion on it one way or the other.

The role of economic factors in deforestation is reviewed by J.R. Kahn and J.A. McDonald. The role of external debt is emphasized, on the assumption that tropical countries act to maintain their levels of per-capita gross national product (GNP) above some minimum acceptable level, and that they do this by deforesting so as to meet their debt obligations while staying above the defined minimum per-capita GNP level. Like logging, the question of causes of deforestation is a controversial subject on which many viewpoints exist. In the analysis of foreign debt as a causal factor, as in the other cross-national statistical analyses reviewed in the chapter devoted to causes of deforestation, two basic problems are apparent: the diversity of situations among individual countries and the fact that all countries are not equal in importance with regard to deforestation. Brazil is the most important case in point because it has both more remaining tropical forest and more hectares currently being cleared per year than any other country; it also differs from other countries due

to the dominance of cattle ranching as the proximal cause of deforestation. Regressions that give each small Caribbean island state the same weight as the one data point representing Brazil will inevitably arrive at misleading global generalizations on causes of deforestation. Weighting data points by importance can be done (for example in the GLIM statistical package), but this has not yet been applied to the econometric analyses of deforestation. International debt is unlikely to provide an explanation in the case of Brazil, since foreign debt is paid by the government from tax revenues, very little of which are derived from deforestation: large ranchers continue to enjoy 'old' (pre-1991) tax exemptions (as well as many opportunities for tax evasion), while small farmers basically don't pay taxes anyway.

The main thrust of the book is fragmentation, rather than the related questions of deforestation and logging. The Biological Dynamics of Forest Fragments Project (BDFFP) near Manaus, Brazil (6 chapters) is clearly an important source of information on fragmentation effects. This long-term project is run by the National Institute for Research in the Amazon (INPA) and the Smithsonian Institution, and follows a series of 'reserves' of forest ranging from 1 to 10,000 ha in area in a cattle ranching district in central Amazonia. Both editors of the present volume have been important figures in the development of the project. BDFFP results presented in the volume include physiological effects of forest edges on plants, and effects of fragmentation on communities of frogs, birds, small mammals, butterflies, and leaf-litter invertebrates. Thomas Lovejoy, the founding father of the BDFFP, contributed the foreword to the volume.

The wealth of data in the volume will be of great value to researchers working on tropical forest biodiversity loss. Access to this information is facilitated by indices by subject, taxon, and the names of cited authors. The references at the end of the volume occupy 54 pages, providing entry into the rapidly growing literature on tropical forest fragmentation. The list of names and addresses of the 72 contributors serves as a sort of 'who's who' for the field of tropical fragmentation studies.

The volume is organized by subject rather than geographically. It is divided into seven sections: the scale and economics of tropical deforestation, physical processes and edge effects, tropical forest faunas, plants and plant-animal interactions, restoration and management of fragmented landscapes, site selection and design of tropical nature reserves, and summary and perspectives. Each section begins with an introduction by the editors summarizing the major points of the papers contained in it. Each paper concludes with a numbered list of 'general implications'. The volume concludes with two synthesis chapters, each with 16 authors: "Researching tropical forest fragmentation: synthesis of a diverse and dynamic discipline" and "Key priorities for the study of fragmented tropical ecosystems".

These two chapters contain the results of the discussions held in a meeting following the Snowbird workshop. The considerable effort that has gone into trying to draw generalizations from the mass of detailed case studies is apparent, as is the effort to extract all possible lessons for guiding decisions on tropical reserve establishment and management. The bottom line is that habitat fragmentation has profound ecological effects that substantially increase the impact of tropical deforestation on biodiversity beyond the direct effects of destroying vast areas of forest.

Philip M. Fearnside
National Institute for Research
in the Amazon-INPA
C.P. 478
69011-970 Manaus-Amazonas
BRAZIL