

in more than 2000 catchments. Intangible benefits included the development or strengthening of community agroforestry and the sense of commitment from campesinos, probably enhanced by increased property values at the project sites.

Rodríguez acknowledges the limits of this approach in conserving biodiversity and devotes some thoughts as to how similar strategies could apply to other ecosystems or to natural regeneration. Because it provided rural employment and involved local authorities, most armed groups acquiesced in the projects. There are, of course, projects that could not be completed because of the territorial disputes between armed groups, and Rodríguez wonders if the CAR might not have excluded some areas from consideration for security reasons. It is also possible that armed groups extorted Plan Verde money from the community. If so, this would probably go unreported. That impoverished campesinos were willing to change the long-term use of part of their land, from field to forest, in exchange for what were doubtlessly modest incentives should be heartening to conservationists. The fact that they did so almost in the crossfire is nothing short of heroic. What Colombia's armed conflict makes starkly clear is that a bloody conflict of interest between unequal powers is at the core of much environmental destruction. Only the commitment of empowered locals protects the land in the long run. This, more than any other reason, makes democracy critical to conservation in Colombia and everywhere else.

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### Farmers and the Forest: Can Agroforestry Actually Conserve Biodiversity?

**Agroforestry and Biodiversity Conservation in Tropical Landscapes.** Schroth, G., G. A. B. da Fonseca, C. A. Harvey, C. Gascon, H. L. Vasconcelos, and A-M. N. Izac, editors. 2004. Island Press, Washington, D.C. 576 pp. \$45.00 (paperback). ISBN 1-55963-357-3.

*Agroforestry and Biodiversity Conservation in Tropical Landscapes* aims to evaluate the common claim that agroforestry serves to promote biodiversity conservation in tropical mosaic landscapes. It is written for students and practitioners of agriculture, forestry, and related disciplines. The editors and authors range widely in disciplinary expertise, including tropical agriculture, conservation biology, resource economics, and forestry. They hold positions in universities, nongovernmental organizations, and research institutes.

The central goal of the book is to explore three hypotheses regarding the role of agroforestry in biodiversity conservation: (1) agroforestry helps reduce pressure to deforest additional land, (2) agroforestry provides habitat and resources for some native plant and animal species, and

(3) the conservation value of the forest fragments is greater if they are embedded in a landscape dominated by agroforestry rather than in a surrounding matrix of intensive agriculture and pasture.

*Agroforestry and Biodiversity Conservation in Tropical Landscapes* is arranged in five parts and considers each of these hypotheses in a multidisciplinary context. Part I introduces major concepts of tropical conservation biology and landscape ecology and notes the potential and limits of agroforestry to ameliorate the impacts of threats such as habitat fragmentation and deforestation. Part II, on socioeconomic aspects, includes chapters on economic valuation methods, a critique of the ability of agroforestry to reduce deforestation, a case study of cacao production, and an introduction to conservation concessions. Part III focuses on landscape-level biodiversity conservation in a range of agroforestry practices, including shifting agriculture and structurally complex agroforests such as rustic coffee plantations, living fences, and isolated trees in pastures.

Parts IV and V are somewhat eclectic groups of chapters. Part IV, entitled "Biodiversity as Burden and Natural Capital," addresses a range of issues, including local perspectives toward protected areas, hunting, invasive species, and disease dynamics in agroforestry systems. Part V describes examples intended to complement the biological and economic evidence presented in the previous sections of the book. Chapters range from an uncritical description of a conservation project in the Brazilian Atlantic Forest to a thoughtful review of the silvopastoral and conservation benefits of *Acacia pennatula* in Nicaragua. The final chapter revisits the book's three original hypotheses in light of the evidence presented within, concluding that whether each hypothesis holds true is highly context specific. In this chapter and throughout the book the authors note knowledge gaps and

highlight areas for future research in the management and conservation potential of agroforestry systems.

We were impressed to see agroforestry systems presented at a wide range of scales and connected to important ecological topics such as climate change, invasive species, diseases, and genetic diversity. Although many case studies concentrate on the American tropics, attempts are made to discuss systems in Africa, Southeast Asia, and Australia. Many chapters conveniently cross-reference each other within the volume, which helps limit overlap in material. Definitions of agroforestry sometimes conflict among chapters, however, and a historical review of the topic could have provided continuity throughout the book. Much foundational literature is missing, most notably in the introduction. The absence of a critical analysis of past successes and failures of agroforestry as a development tool may give an overly optimistic impression of agroforestry as a strategy for conservation.

The hypothesis-testing format of the book provides a useful framework to investigate whether or not agroforestry contributes to the conservation of biodiversity. We particularly appreciated the variety of viewpoints presented. Instead of only providing evidence in support of the view that agroforestry can help conserve biodiversity, many authors provide useful critiques. This variety leads to a thorough appraisal of the ecological value of agroforestry systems (hypotheses two and three). For example, multiple chapters note that although agroforestry systems may host more diverse species assemblages, rarely has it been demonstrated whether or not organisms successfully reproduce in these systems. We appreciated that some chapters provide thorough and critical literature reviews on particular types of agroecosystems (e.g., chapters 8, 9, and 11). But a few chapters (e.g., chapters 7 and 17) principally promote specific agroforestry

projects and do not fit well within the hypothesis-testing framework.

We were concerned that parts of the book lack cultural sensitivity and do not adequately incorporate the reality of farming in tropical landscapes. For example, the authors of one chapter fail to recognize the complex cultural values embedded in forest extractive practices for meat and medicines, by suggesting modern pharmaceuticals and domesticated livestock as suitable replacements (chapter 14). Without supporting evidence, the authors propose that the widespread availability of Viagra could reduce the wild crafting of natural aphrodisiacs and discount the cultural, educational, and conservation benefits of raising wild game. This style of top-down cultural engineering of food and health systems lacks an appreciation for the importance of local culture and can lead to severe and unintended consequences. Conversely, we appreciated the ways in which chapter 19 accounts for farmers' perspectives through the use of narrative and would have liked to have seen this approach more often.

We appreciate that the book includes social scientific analysis, but these approaches are applied with mixed success. The critical economic analysis of the potential of agroforestry to reduce deforestation (chapter 5) is useful, but its sobering lessons on the difficulties of agroforestry adoption are seldom applied elsewhere in the book. For example, idealistic prescriptions for the expansion of biodiversity-friendly land uses through conservation concessions (chapter 7) lack practical suggestions for their widespread adoption. In addition, the socioeconomic and political constraints on the maintenance or adoption of biodiversity-friendly systems of land use developed in Part II are presented as local phenomena and are not placed into a larger discussion of global socioeconomic and political forces. The effect of immigration on changing cocoa

growing practices is ascribed to local causes (chapter 6), neglecting international macroeconomic factors.

This book presents a useful but not comprehensive tool set for researchers and practitioners involved in agroforestry as a conservation strategy. It provides an excellent introduction to the potential of agroforestry for the conservation of tropical biodiversity and a solid entrance into associated ecological literature. Expanding the analyses, however, to more explicitly include the socioeconomic challenges that farmers face as managers of tropical landscapes would allow for a more complete evaluation. Overall this book is a good entry point for further research and for the development of agroforestry as a means for conservation.

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#### **The Road Map to North American Bird Conservation**

**North American Landbird Conservation Plan.** Rich, R. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H. Dunn, W. C. Hunter, E. E. Inigo-Elias, J. A. Kennedy, A. M. Martell, A. O. Panjabi, D. N. Palsley, K. V. Rosenberg, C. M. Rustay, J.