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BOOK REVIEWS

HUMAN, ECOLOGICAL AND PHYSICAL DIMENSIONS OF TROPICAL DRY FORESTS. MANUAL OF METHODS

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Human, Ecological and Physical Dimensions of Tropical Dry Forests. Manual of Methods (2008) Jafet M. Nassar, Jon Paul Rodríguez, Arturo Sánchez-Azofeifa, Theresa Garvin, Mauricio Quesada. Ediciones IVIC. Caracas, Venezuela. 129 pp. ISBN 978-980-261-103-4.

This book provides a manual of methods for biological, remote sensing and social science research in tropical dry forests, the world's most threatened tropical forest type. Given that these endangered forests have been subject to far less research than the better known and more highly publicised rain forests, this book is urgently needed and very welcome. It has been produced by the TROPI-DRY project, a collaborative research network for the study of tropical dry forests in the Americas. This initiative, funded by the Interamerican Institute for the Study of Global Change brings together researchers from Mexico,

Costa Rica, Brazil, Venezuela and Cuba, and is studying dry forest in all these locations, giving a good latitudinal sample of this formation in the Neotropics.

The book is divided into chapters dealing with Ecology, Remote Sensing and Social Science. Each is written with a high level of detail, and also quite accessibly, so it will be useful for scientists who are not specialists in each field. The Ecology section covers how to assess ecosystem composition and structure, how to characterise soil and the mycorrhizae and rhizobia it contains, how to measure phenology, and how to assess biotic interactions. The remote sensing chapter covers data acquisition and processing, field data collection, generation of forest succession and structure maps (succession being a major focus for TROPI-DRY), and then goes on to discuss measurement of photosynthetically active radiation, leaf spectral reflectance and leaf area index. As a non-social scientist who increasingly needs to be aware of social science methods, I found the

final chapter especially useful. For a specific study area, it outlines how to gather social, population and economic indicators, how to understand environmental policy history and how to carry out case studies. This social science emphasis is vital given the importance of the 'ecosystem approach' that needs to take account of the human dimension, which is advocated by influential policy such as that outlined in the Millennium Ecosystem Assessment.

The book was published in 2008, relatively early in the life of the TROPI-DRY project. I would urge the authors to consider publishing an update towards the end of the project span based on experiences during its research phase. It is quite possible that lessons will be learned that suggest that some protocols will need minor modification. This is made clear from the remote sensing section, which draws heavily on prior practical experiences in Costa Rica, and which is perhaps the best developed part of the manual. It is unsurprising given the enormous breadth of this book

that one could make some minor suggestions for amendments. For example, it would be useful to add the taxonomic author for species names in the species spreadsheets, and it was not entirely clear how the vegetation inventory plots should be spaced. I also wondered whether sampling insect herbivores might be usefully done when new leaves are flushing, as in rain forests at least it has been demonstrated that this is the period of maximum herbivory.

However, such criticisms are minor and are perhaps inevitable given the enormous breadth of this work, which is its real strength. I congratulate all the authors for this excellent manual, and look forward to seeing the diverse research outputs of the TROPI-DRY project.

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N.B.: This manual is available at
http://tropi-dry.eas.ualberta.ca/pdf/Papers/Tropi-Dry_Manual_of_Methods.pdf