
Tropical Rainforest Research—Current Issues

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AS RESPITE FROM THE RELENTLESS BARRAGE of news on tropical forest destruction, it is always reassuring to think of the tiny country of Brunei Darussalam, occupying an oil-rich niche carved out of the northern coast of Borneo. Unlike its neighbors, Brunei has been able to stave off the chainsaws, making it a rare jewel of global conservation. In 1991–1992, the University of Brunei Darussalam and The Royal Geographical Society, London, joined in a 70+ scientist expedition into the forests and streams around the then-new Kuala Belalong Field Studies Centre. This volume resulted from a 1993 conference convened, in part, to present the scientific findings of that expedition.

A massive tome, composed of 53 chapters by 85 authors, this book has something for everyone. It is divided into three main parts: the first (20 chapters) on biodiversity, the second (20 chapters) on rainforest dynamics, and the third (13 chapters) on socio-economics. Each section is launched by an invited article, and those three contributions warrant study by anyone interested in tropical forests. Stork's lead-off chapter on "Tropical forest dynamics: The faunal components" is true to its title, giving appropriate emphasis to arthropods in the process. In introducing the second section, Grubb ("Rainforest dynamics: The need for new paradigms") neatly dismembers all those tidy generalizations with which most of us have just begun to feel comfortable. Forget what you thought you knew about the role of gaps in regeneration; shade tolerance as a species' trait and light as the consummate controller of growth; the irrelevance of below-ground competition; and almost everything you ever heard about processes related to seed size and soil seed banks. Eaton's introduction to the third section is a primer on economic evaluation, which reviews direct and indirect uses, and option, bequest, and existence values, in the context of local communities.

Few of the chapters, of course, directly target resource management or silviculture, but that observation by no

means makes their contents irrelevant to foresters. Biological diversity, interspecific dependencies, dynamics of geomorphology, and the relationships between people and forests are themselves the very substance of resource management. These are the topics with which foresters will have to become intimately familiar if they are to devise ways to protect and, where appropriate, use complex tropical forests sustainably. Indeed, the entire contents of a volume such as this are relevant to forest science.

Inevitably, in a 53-chapter volume, the variance in quality is high, but there are enough gems scattered about to make the search worthwhile. Many of the taxon-specific inventory chapters will be of interest primarily to specialists in the group studied, although they vary greatly in comprehensiveness, ranging from "arthropods" to "stalk-eyed flies" to "*Presbytis*" (a genus of monkey). The one I found most fascinating (by Poulsen, Nielsen, Tan, and Balslev) described a 1 ha inventory plot containing 550 trees composed of an amazingly rich assemblage of 231 species, 143 of which were each represented by a single individual: so much for the "100 species per hectare" guidepost.

A taxonomic perspective pervades many of the chapters in the "rainforest dynamics" section as well, which tend to focus on two-item interactions, such as trees with nitrogen, figs with pollinators, butterflies with ants, logging with mammals, and herps with habitats. Missing or rare are substantive contributions to ecophysiology, nutrient dynamics, complex trophic webs, and anything experimental.

The third section, on "socio-economics," is as jumbled as its namesake: case studies of logging damage (to human societies) are mingled with a bit of old-fashioned ethnobotany (what is its name and how is it used), philosophical essays on the complexities of assigning value to nature, a couple of chapters on geographic information systems,

and one that deals with palm mensuration. Here too are the sole non-Asian contributions, one from Africa (Kenya) and the other from the Neotropics (Brazil).

Not having visited Brunei Darussalam, I envision the Kuala Belalong Field Studies Centre as modern, comfortable, and well-sited; clearly, the local ecological studies in this volume validate the latter. It is curious, therefore, that a British "expedition" sets the tone and dictates the substance of the book. It seems a pity that, in the 1990s, tropical ecology

should still be advancing through use of expeditionary forces from the north. Probably two-thirds of what we know about tropical silviculture comes from knowledge gleaned (albeit by colonial foresters) early in this century from the forests of Asia, and local foresters have ably carried forward that tradition of excellence. Perhaps another decade of research, and the next symposium volume to emerge from Brunei Darussalam, will vault Asians' contributions in tropical forest ecology to similar status.