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Peer reviewed

A lifetime's tribute to Asian forests

On the Forests of Tropical Asia: Lest the Memory Fade, by Peter S. Ashton, 2014, Royal Botanic Gardens, Kew, 672pp. GBP 110 (Hardback) ISBN: 9781842464755.

Peter Ashton is a forest polymath: an ecologist, field botanist, taxonomist, an arboretum director and a forestry and international development adviser. Over fifty years he has traveled widely in and studied the forests of South and Southeast Asia, with an intellectual appetite that is both admirable and intimidating. Now he is sharing his reflections on the ecology, evolution and management of these forests in a rich, thick and beautifully illustrated book. The book represents an invaluable historical record of one person's passionate engagement with the shrinking forests of Asia, but is also far more: by organising and synthesising a vast amount of literature and personal experience, it is a gift to researchers and policy makers trying to understand and manage these forests.

Ashton is explicit that he considers this book to be a collection of essays, full of creative discussion and speculation, and not primarily a textbook. The book's form however follows a topical classification typical of a textbook on forests, from climate and forest structure to human impacts on the forest, and the book is organised into a deep hierarchy of sections. This makes it possible to quickly locate writings relevant to a particular topic, and means that the book could be profitably used as a text for a class on Asian forest issues. However, this highly sectioned organisation does trade off against flow, and the essays are less integrated than they might have been if the chapters were more continuous.

Irrespective of format, the book admirably achieves one of the author's primary goals, that of offering students a rich selection of questions to stimulate research interests and to shape dissertations. In this, Ashton is most keen to help students in countries in the Asian region (p. 9). He recognises that many of today's students have little opportunity to visit multiple forests or to spend long periods in any one forest, where their own curiosity might directly reveal intriguing questions. As a remedy, Ashton takes us on an engaging and col-

orful tour of the hundreds of Asian forests he has visited (see Fig. 1 in the book), while sharing his observations, comparisons, interpretations and theories. The inclusion of a great many color photos contributes to the strong sense a reader has of 'being there,' listening to Peter talk while sun-flecked leaves nod in a light breeze, and bright birds call overhead. To further stimulate students, Ashton marks certain questions and statements in a special font, to indicate topics he considers to be particularly fertile and important for further study. I actually wish he had marked more sentences than he did, though anyone paying attention will find hundreds more questions on their own. Ashton's writing style, generally clear and well-paced, but also full of flourish and speculation, contributes to the vibrancy of the reader's own internal commentary and critique.

A major barrier to Ashton's desire that this book be a resource for students is its very high cost (GBP 110; USD 180). He does state that the book is also published online (p. 11), "so that students worldwide can readily access it at affordable cost," but at the time of this review the publisher had not yet made this digital version available. We can only hope that this matter is soon resolved.

The nine chapters fall into three groups. The first (Chapters 1 to 5) sets the stage, dealing with climatic and geological influences on forests in the Asian tropical region (Chapter 1), with forest structure and its dependence on water and light availability (Chapter 2), and gives a comprehensive overview of forest types (Chapters 3 and 4). A unique advantage of this book over other such treatments (Tim Whitmore's 1984 classic is the obvious comparison) is its coverage of South Asian forests, the similarity in species composition of which make them naturally suited for inclusion. The importance of "mobile links" (animals and fungi) is covered in Chapter 5, which also includes an invaluable review of staggered flowering in dipterocarps. This first group of chapters is the

most textbook-like part of the book, and is rich in detail and illustration. It significantly updates Whitmore's (1984) text but is in some places uneven or repetitive, both in topic (mycorrhizae receive a scant single page) and in presentation (e.g., an overabundance of 'boxes' in Chapter 5, and overlapping discussions of deciduous forests in both Chapters 2 and 3). In the chapters in which they occur, the summarising Conclusions sections are very useful, but not every chapter has one. For those readers interested primarily in an up-to-date review of facts for Asian tropical forests it is good news that Ashton is currently working with David Lee on a much condensed, edited version of this book, to be published in the near future (Ashton, Lee, pers. comm.).

The second group of chapters is the book's evolutionary ecology core, and may most appeal to readers of this journal; it covers regional history and biogeography (Chapter 6), and the origin and maintenance of species diversity (Chapter 7). Ashton's long experience as both an ecologist and a systematist (he is author of the foundational 1982 *Flora Malesiana* treatment of the dipterocarps) gives him a near unique insight and feel for the influence of history and landscape variation on tropical tree ecology and evolution. He was also instrumental in the establishment and maintenance of many of the large (up to 52-ha), long-term forest dynamics plots (FDP) in the CTFs-ForestGEO network (Center for Tropical Forest Science - Forest Global Earth Observatory), and CTFs plot findings are extensively discussed in this book.

Ashton is a long-time collaborator of Stephen Hubbell, who set up the first FDP plot in Panama in 1980, and who has been a major promoter of the idea that many biodiversity patterns can be sufficiently explained by neutral ecological processes, without a necessary role for species' ecological differences (Hubbell 2001). Ashton has, in previous writings and here in this book, engaged seriously with this 'neutral theory.' He recognises some elements of the diversity structure of forest communities which challenge neutral theory assumptions (for example the high consistency in rank abundance among suites of dipterocarp spe-

cies over very large distances; p. 454, 477), and others in which the theory may play an explanatory role (see p. 491, "The role of community drift: a last laugh for neutral theory?"). The debate over the neutral theory has become a mainstay of modern ecology, and Ashton's nuanced views, based on his extensive field and herbarium experience, deserve to be widely read as a corrective to over-modeling the forest.

Ashton's discussions of these and other matters do however expose a (forgivable) shortcoming of this book: while there are many extensive intra-Asia comparisons made, perhaps too little reference is made to the large volume of tropical tree research in the Neotropics. I also felt that this central section of the book, on biogeography and species variation, did not well highlight Ashton's experience as a herbarium and field taxonomist. The nature of tree species, spatial patterns in morphological variation, and the challenges of species delineation and identification are fundamental issues in research on tropical tree diversity, but are given scant attention in the ecological literature. Ashton has written thoughtfully on these matters in the past (e.g. Ashton 1982, 1988), and I would have valued seeing them woven more frequently into his essays here.

The final two chapters deal with human-forest interactions, forest management and conservation. Again, the length of Ashton's tenure in Asia is remarkable, and in the more than 50 years he has been studying these forests, he has personally observed huge changes to the forest landscapes he knows. His own enthrallment to the forest began with his days camping with young Iban guides in Brunei, and these essays are dedicated to them "in friendship and respect" (p. 591). He demonstrates throughout the book his deep concern for local communities living near forests. His overall message in these applied chapters is that only sustainable, silvicultural *use* of the forest estate, benefiting both local and non-local stakeholders, combined with strategic preserves of intact, primary forest, can permit the long-term survival of the forest (p. 567). Yet he acknowledges the difficulties in successfully encouraging the swelling numbers of the urban middle class to

speak out against unsustainable forest use and degradation. Indeed, Ashton does not offer any unexpected or particularly hopeful remedies for the ongoing loss of these forests, and the book's striking subtitle ("Lest the memory fade") contains more than a hint of despair. But the sad seriousness of these final chapters suggests to me that the most significant contribution of this book towards protecting these forests may be Peter's infectious passion in describing their biology and colour, which will certainly move readers to care more and to act more on behalf of the forests. The book is an extended love letter to the forests of tropical Asia, and I hope it will be widely read.

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