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Dedicated to the memory of
ARTHUR MORRELL

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FOREWORD

It is a great privilege to be asked to write the foreword to this book for three reasons.

First, the scientific quality of the book and its professionally significant implications are outstanding and the author should be congratulated. The roles of forests in human welfare and environmental sustainability are now widely recognized, including the role of man-made plantations. Throughout the world there is an increasing recognition of the needs for and benefits of trees and forests for an ever-widening range of products and services. Among the products, timber is still the most important because of its wide range of uses and because of the increasing sophistication of the wood-using industries in converting timber efficiently, making long-lasting products and reducing adverse environmental impacts. Unfortunately, the timber industry has received considerable ill-founded criticism in the last decade concerning its alleged role in causing tropical deforestation. Equally there has been criticism of plantations, particularly with exotic species, on the alleged grounds that they damage soils, use all available agricultural water, reduce natural biodiversity and deprive poor people of either land rights or employment. While there are undoubtedly cases where such criticisms are justified, there is increasing concern throughout the industry to seek wiser management and sustainable exploitation of forests for all their benefits. This book should add to our understanding and achievement of such aims.

Second, it is a privilege to recognize the contribution of Mr Daniel Kemp, Chairman of Timbmet Group Limited, who by financial contribution to the Oxford Forestry Institute facilitated the preparation of this book. Mr Kemp came to Britain in 1938 as a refugee and helped his father establish a timber business. Following his father's death in 1959 he developed this into a thriving timber importing business that is widely reputed throughout the tropical world

as an honest and concerned company prepared to discuss frankly forest management as well as wood use and the company's environmental impact. Mr Kemp was a great friend of Mr Arthur Morrell to whose memory he wishes this book to be dedicated.

Third, it is my privilege to share in the recognition of Arthur Morrell and I am grateful to Mr Bob Plumptre and Mr Geoff Pleydell for their help in preparing this summary of Arthur's life.

Arthur Morrell spent all his working life in the British timber trade. He started in 1939 at a very young age as a junior member of the staff of the Nottingham branch of Fitchett and Woollacott; he became a director of the same firm in 1966 and joint managing director in 1980. In the early 1980s he moved to run the operations of Parker Kislingbury in Herefordshire and later became Chairman of the hardwood interests of Mallinson-Denny, which was subsequently purchased by Hunter Timber within the Wickes Group. Retirement in 1990 was only nominal. He became Chairman of the National Hardwood Association of the Timber Trade Federation, a leading player in the industry's 'Forests For Ever' programme and the trade adviser to the UK delegation to the International Tropical Timber Organization (ITTO). He was also a consultant to Timbmet and a non-executive director of his old company, Fitchett and Woollacott.

It is hardly surprising that, after 51 years in the hardwood timber trade, Arthur knew something about timber and the trade. He had extensive knowledge, not only of the commonly traded timbers, but had engaged in repeated trials of 'lesser-known' species from as early as the 1960s. It might have been expected that after such a long career in the trade he would be somewhat intolerant of strong, anti-trade, environmental views, particularly those which ignored the practicalities of marketing and utilizing timber. However, it was clear that his huge love for wood and his knowledge of its versatility as a material made him particularly determined that wood should be conserved and used in ways that promoted the continued existence and good management of forests and all the benefits accruing from them.

He was a practical conservationist in the best sense and cared enough to be prepared to spend an immense amount of time and energy in trying to bridge the gap between the environmental lobby and the trade. This care was demonstrated by the fact that he was always ready to listen to anyone's views, however extreme, answering them fairly, but very often openly and honestly on what he considered were their merits.

His skills as a chairman and as an arbitrator in a dispute were remarkable, partly because of his respect for people in their own right, which brought with it an ability to see both sides of a dispute, and partly because his sense of

proportion and humour made it difficult to be angry with him for any length of time. This was demonstrated many times in ITTO meetings during long and sometimes heated discussions on the problems of harvesting and managing tropical forests sustainably. In his work with ITTO he frequently promoted or supported the funding of pragmatic and achievable projects designed to solve these problems.

Perhaps the most enduring memory of Arthur is of a person for whom nothing, however apparently trivial it might be, was too much trouble for him, even when he was under considerable pressure, providing it was going to help someone.

Jeffery Burley
Director, Oxford Forestry Institute

PREFACE

In the late 1970s, I was somewhat surprised to find myself conducting the first detailed work on the ecological effects of timber logging in a tropical rain forest. Surprised, that is, that so little had been conducted beforehand. Due mainly to the medium of television, enormous public interest had been kindled concerning the fate of the rain forests. In response to this interest, a flood of popular and scientific books and articles reporting on the consequences of tropical forest loss had been unleashed. The extent of clearance of tropical forest for shifting or plantation agriculture, cattle ranching or other human activities was widely and often acrimoniously debated.

All the fuss focussed exclusively on deforestation, which could conveniently be tracked by satellite technology and did not require much by way of actual field research. After deforestation, timber logging was the second most important human influence on tropical forests. It was known to affect 50 000 km^2 of rain forest annually during the late 1970s and 1980s. Yet no-one had considered it appropriate to go into the field to research the effects logging might have on rain forest biodiversity. Forests subjected to timber logging were invariably included within 'deforestation' statistics. They were considered as lost to wildlife and ignored in forest conservation strategies.

Look down from an airplane flying over any extant tropical forest and the differences are quite obvious. Areas at the edge of the forest are continually being cleared to support the expanding human populations. These appear as bare ground, irregular outlines of crop fields or ranches, or serried ranks of plantation crops. Although a transition may be gradual, at some point the overt evidence of human presence will give way to an irregular tree canopy with occasional cleared patches and a snaking road network. This is the forest that has been logged but nevertheless remains as forest. Normally, quite a lot of this

will need to be traversed before reaching forests that appear pristine. If, indeed, there are any.

Travel the same distance on the ground and the differences are even more obvious. Agricultural areas, villages and an abundance of people give way to stands of trees, dense regenerating growth and an absence of people. Signs of animal life begin at the forest edge and become commoner in the interior. One thing becomes clear very quickly, the assumption that logged forests support none of the biodiversity of unlogged forest is plain wrong.

In 1983 I approached Cambridge University Press with the idea of publishing a book pointing out the possibilities for the integration of tropical forestry and biodiversity conservation strategies. At that time this was considered almost heretical. It remains controversial in some quarters, although it is now a much more acceptable approach. In 1983 my ideas were barely formed, however, and relied heavily on data I had just collected in South-East Asia. The idea was nevertheless encouraged by Robin Pellew, then an editor at the Press, although the importance of a global approach was stressed. I subsequently went back into the field to conduct further research, first to South America and later to Africa. By 1995 sufficient information had been collected, by myself, co-workers and independent scientists throughout the tropics, that a global analysis could confidently be undertaken.

The book relies a great deal on my original fieldwork, since this forms a large part of the available information from tropical forests. I would thus like to acknowledge the financial support received at various stages over the last 18 years from the following: the National Environmental Research Council, the Overseas Development Administration and The Royal Society of the UK, the US Government (National Institutes of Health) and USAID, WWF-International, WWF-US, WWF-Malaysia and the Wildlife Conservation Society. My thanks also for the use of field facilities run by the Forest Research Institute of Malaysia, the Sabah Foundation and Makerere University.

Over the years many people have assisted the development of research by offering comments on manuscripts, through discussion, or through provision of unpublished data or reports of limited distribution. In this context I would particularly thank the following: C. Fairgreave (Edinburgh), M. Heydon (Fordingbridge), L. Holbech (Copenhagen), P. Howard (Accra), M. Kalyakin (Moscow), J. Karr (Blacksburg, VA), A. Kemp (Pretoria), F. Lambert (Bangkok), R. Lowe (Ibadan), L. Roche (Dublin), T. T. Struhsaker (Durham, NC), S. Sutton (Manchester), J-M. Thiollay (Paris), L. White (Edinburgh) and T. Whitmore (Cambridge). Key figures who have assisted the development of research over the years are D. Chivers (Cambridge), C. Marsh (Vientiane), A. Marshall (Aberdeen) and R. Mittermeier (Washington, DC).

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The completion of the book was assisted by a memorial award from the Oxford Forestry Institute, donated by Mr Daniel Kemp (Timbmet Group Limited) in memory of the late Mr Arthur Morrell. That commercial interests should participate in the publication of work on tropical forest conservation is an encouraging indication of how the two often opposing camps are converging.

Andrew Grieser Johns
Brackley, Northamptonshire

EXPLANATORY NOTE

A logged forest is a transient ecosystem moving to regain the structure that existed prior to logging. The most important factors affecting the extent to which it differs from primary forest are the time that has elapsed since the logging event and the degree of damage caused by the logging operation. In the text of this book these data are included for all references to a logged$^{(12:50)}$ forest. This example indicates that data refer to a forest logged 12 years previously at which time 50% of trees were destroyed. Elapsed periods date from the onset of logging rather than its completion.

On occasion, published studies fail to provide these data. The information may sometimes be inferred from other published material from the same location. At other times, an estimate can be made based on other information given (such as timber volumes removed) and comparative damage levels in other locations within the same geographical region. Where data are not verified, they are preceded by a question mark, as in logged$^{(12:?<35)}$ forest. An absence of any figures, as in logged$^{(12:?)}$ forest, indicates no estimate was considered appropriate.