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Review: Plantation Forestry in the Tropics. 3rd edn

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Andrew Dunbar Leslie

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This is the third edition of Plantation Forestry in the Tropics, the first having been published over 20 years ago. In the intervening years an increase in the demand for wood has seen the area of forest plantations in the tropics increase considerably and now some half the area under plantations is in the tropics and subtropics. The importance of plantations in general is likely to increase further as it is expected that plantations will become the principal source of wood fibre in the near future.

The book now comprises 467 pages and continues to provide an excellent overview of plantation silviculture using examples from tropical and sub-tropical areas. In addition to being a silviculture textbook it also gives much useful background to the history of plantations and their role in providing social, environmental and financial benefits. The authors have succeeded in doing an excellent job of making the subject matter accessible through their straightforward writing style and the inclusion of many informative photographs, tables and diagrams. As in the second edition, but not the first, the provision of a species index (trees, plants and animals), in addition to the subject index, has improved ease of use.

The latest edition is a revision and update of the previous one and, although much of the text remains the same as the previous edition, every chapter has been revised and plenty of new information and current references have been incorporated. A number of recent advances in silviculture and issues relating to tropical forestry, such as genetic modification, have also been added. The same basic structure has been adopted, being divided into four main parts, but with 24 chapters rather than the 22 of the previous editions. The two new chapters cover clonal plantations and tree planting for eco-system rehabilitation and restoration, respectively.

The first part begins by describing the tropical environment and how it differs from temperate areas. This is important in providing background for the reader because, despite the basic principles of silviculture being universal, differences in the social, ecological and financial environments mean that some technologies or practices cannot be adopted from temperate areas. In the rest of the section the authors examine the history of the expansion of the area of plantations and discuss the reasons and general characteristics that have lead to their success. Generally such attributes relate to the use of exotic species, the simplification of structure and greater regularity of conditions in the stand. These have enabled greater and more predictable production and simpler management than that of natural forest. Those familiar with growth rates from temperate forests will be impressed with those achievable in intensively managed plantations in the tropics, particularly the wet tropics.

Part II looks at the role of plantations as a land use, the social and economic factors that have encouraged plantations and planning processes for forest plantations. The section starts with a chapter that discusses the role of land evaluation and zoning in ensuring plantations are located where they will most benefit society. The constraints to plantation development as a land use are
described, including physical limitations such as soils and climate but also other influences such as 
tenure and competing land uses. A whole chapter is devoted to social and economic issues, which is 
appropriate as it is often these factors rather than technical ones that govern the success of 
plantation forestry. The chapter that follows covers the planning processes involved in establishing 
and managing plantations, across a range of scale from large projects to small-scale initiatives. 
The important factor of stakeholder participation is dealt with only briefly, but the reader is 
directed to other texts for more detail.

Part III comprises chapters on plantation silviculture and makes up 190 of 467 pages in the book. 
This section provides the reader with an overview of the silvicultural practices applied to artificial 
stands, from regeneration to harvest. It starts in a logical manner with plantation establishment, 
first describing the variables that influence species choice starting with the objectives for planting. 
The authors go on to discuss the merits of the use of exotic or native species before examining the 
process of matching species to site, including an overview of abiotic and biotic site factors. This 
chapter is followed by chapters on seed collection, supply and storage and the management of 
forest nurseries. A new chapter on clonal forestry is a welcome addition, expanded from a few 
pages in the previous edition. This is timely, as the use of hybrid and pure species clones is an area 
with considerable potential for intensive, industrial plantations. The chapters on establishment end 
with a chapter covering site preparation and planting, including taungya, inter-cropping and 
enrichment planting, techniques that are uncommon in developed temperate countries.

The latter half of the third part is devoted to a straight-forward, informative description of 
plantation maintenance. Both the content and structure are similar to the previous edition, 
but with the incorporation of useful new information. There are seven chapters in total, with the 
first two focusing on maintenance immediately after planting and stand nutrition. Ones on the 
inter-related topics of growth, thinning, pruning and rotation follow these. The final chapter is on 
protection, covering damage from biotic, abiotic and man-induced factors.

The fourth and final part looks at the broad benefits that trees can provide to agriculture, local 
development and the environment. The final chapter examines the sustainability of plantation 
forestry, describing plantation forests’ role in biodiversity conservation and also what the authors 
call narrow sense sustainability or long-term site productivity. A short chapter has been added 
in this edition on tree planting for rehabilitation and restoration of biodiversity in ecosystems. 
The chapter begins with defining the progressive states of site degradation and the approaches 
required to rehabilitate sites under such conditions. This includes brief sections on management 
strategies, species selection, plantation design and site management practices. The chapter ends 
with a series of case studies on the use of tree planting to restore degraded areas in six countries.

The revisions in the latest edition have successfully brought the text up-to-date and expanded 
it to cover recent developments in plantation forestry in the tropics. The publication makes 
an excellent text book, not only for forestry students but also those studying tropical aspects of 
environmental science. It covers the factors encouraging the expansion of plantation forests in the 
tropics but also provides a good overview of plantation silviculture with a tropical perspective. 
In addition to being highly suitable for student study the text is sufficiently technical in its approach 
to also be of interest to the professional forester and yet accessible enough to be read by those 
with a more general interest in forestry.