Ariel E. Lugo  Julio C. Figueroa Colón
Mildred Alayón
Editors

Big-Leaf Mahogany
Genetics, Ecology, and Management

With 82 Illustrations

Springer
# Contents

Preface: Knowledge—and Conserving Mahogany .......................... v
Contributors ........................................................................... xiii

## 1. Mahogany: Tree of the Future
Timothy C. Whitmore ................................................................. 1

### Section 1. The Tree and Its Genetics

## 2. Genetic Variation in Natural Mahogany Populations in Bolivia
Marilyn D. Loveless and Raymond E. Gullison ......................... 9

## 3. Twenty Mahogany Provenances Under Different Conditions in Puerto Rico and the U.S. Virgin Islands
Sheila E. Ward and Ariel E. Lugo ............................................. 29

## 4. Hurricane Damage to Mahogany Crowns Associated with Seed Source
John K. Francis and Salvador E. Alemañy ................................. 94
5. A New Mesoamerican Collection of Big-Leaf Mahogany
Carlos Navarro, Julia Wilson, Amanda Gillies, and Marvin Hernández

Section 2. Ecophysiology and Regeneration

Ned Fetcher, Shiyun Wen, Adisel Montaña, and Francisco de Castro

7. Comparative Analysis of the Nutritional Status of Mahogany Plantations in Puerto Rico
Ernesto Medina and Elvira Cuevas

8. Growth-, Water-, and Nutrient-Related Plasticity in Hybrid Mahogany Leaf Development Under Contrasting Light Regimes
Ernesto Medina, Hsiang-Hua Wang, Ariel E. Lugo, and Nathaniel Popper

9. Regeneration, Growth, and Sustainability of Mahogany in México’s Yucatán Forests
Laura K. Snook

10. Regeneration of Big-Leaf Mahogany in Closed and Logged Forests of Southeastern Pará, Brazil
James Grogan, Jurandir Galvão, Luciana Simões, and Adalberto Veríssimo

11. Effects of Large-Scale Flooding on Regeneration of Big-Leaf Mahogany in the Bolivian Amazon
Raymond E. Gullison, Corine Vriesendorp, and Agustín Lobo

12. Regeneration After Hurricane Disturbance of Big-Leaf and Hybrid Mahogany Plantations in Puerto Rico
Hsiang-Hua Wang and Frederick N. Scatena
Section 3. Silviculture

13. Silvicultural Systems for Big-Leaf Mahogany Plantations
   John E. Mayhew, M. Andrew, James H. Sandom, S. Thayaparan, and Adrian C. Newton
   261

14. Enrichment Planting of Big-Leaf Mahogany and Spanish Cedar in Quintana Roo, México
   Patricia Negreros-Castillo and Carl W. Mize
   278

15. Structure and Dynamics of Mahogany Plantations in Puerto Rico
   Ariel E. Lugo and Shenglei Fu
   288

16. Mahogany Planting and Research in Puerto Rico and the U.S. Virgin Islands
   John K. Francis
   329

17. Fifty-Nine-Year Performance of Planted Big-Leaf Mahogany (Swietenia macrophylla King) in Puerto Rico
   Frank H. Wadsworth, Edgardo González González, Julio C. Figueroa Colón, and Javier Lugo Pérez
   342

18. Wood Densities of Mahoganies in Puerto Rican Plantations
   John K. Francis
   358

19. Evaluation of Four Taungya Permanent Big-Leaf Mahogany Plots, Aged 36 to 38 Years, in Belize
   Richard C. Ennion
   362

   John K. Francis
   375

Section 4. Shoot Borer

21. Taxonomy, Ecology, and Control of Hypsipyla Shoot Borers of Meliaceae
   Robert B. Floyd, Caroline Hauxwell, Manon Griffiths, Marianne Horak, Don P.A. Sands, Martin R. Speight, Allan D. Watt, and F. Ross Wylie
   381
22. Resistance to the Shoot Borer in Mahoganies
   Allan D. Watt, Adrian C. Newton, and
   Jonathan P. Cornelius

Section 5. Epilogue

23. Recent Literature on Big-Leaf Mahogany
   Ariel E. Lugo

Species Index
Geographical Index
General Index