

# **Philip, M. S. (1994): Measuring Trees and Forests. Second edition. CAB International, Wallingford**

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First author: Philip, Michael S.

Year: 1994

Abstract

Measuring Trees and Forests

Second edition

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Forest mensuration provides data on aspects of length, mass and time of areas of forest, individual trees or parcels of felled timber. Such quantitative information is vital to sellers, buyers, planners, managers and researchers within forestry.

This book is a revision of a successful text originally published in 1983 but written for students in Africa. The new edition is international in scope and has also been changed and updated to reflect recent advances, particularly with respect to biomass and fodder measurement, sampling with unequal probabilities and growth modelling. The book covers both the theory and practice of forest mensuration and includes a number of worked examples of calculations. It is a basic textbook for students of forestry and will also be of value to practising foresters.

[forest dynamic, gap dynamic, succession](#)

[forest management](#)

[methodology: analysis, statistics](#)

[methodology: modelling](#)

Notes

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Sections for Advanced Students

Acknowledgements

Introduction

1. Measurements

1.1. The role of mathematics and statistics

1.1.1. Definition of terms

1.1.2. Accuracy in calculation

1.1.3. Errors of measurement and the measurement of variation

1.2. The choice of where and how to measure forest produce

1.2.1. Calorific values and density of wood

1.2.2. Weight or volume?

1.2.3. Some other forest products

2. Measuring Single Trees

2.1. Introduction

2.2. Cross-sectional area

2.2.1. Principles in cross-section area estimation

2.2.2. Errors in cross-section area estimation

2.2.3. Standardization of measurement procedures

2.2.4. Measuring diameter or girth

2.2.5. The importance of cross-section area estimation

2.3. Height

2.3.1. The importance of height measurements

2.3.2. Methods of measuring tree height

2.3.3. Errors in height measurements

2.3.4. Standardization of measurement procedures

2.4. The form or shape of the tree

2.4.1. The distribution of dry matter in trees

2.4.2. The tree bole

2.4.3. Branch wood

2.5. Bark

2.5.1. Measurement of bark thickness

2.5.2. Calculation of bark percent

2.6. The crown

2.6.1. Crown diameter

2.6.2. Crown depth and crown height

2.6.3. The K/d ratio

2.6.4. Crown surface area

2.6.5. Crown volume

- 2.6.6. Foliage
- 2.6.7. Crown position and crown form
- 2.7. Log and tree bole volume
  - 2.7.1. Log volume by direct measurement
  - 2.7.2. Tree bole volume estimation by direct measurement
  - 2.7.3. Log volume estimation using tables
  - 2.7.4. Tree volume estimation using functions and tables
- 2.8. Tree growth
  - 2.8.1. Simple expressions of growth rates
  - 2.8.2. Calculations of growth at constant rates
  - 2.8.3. Other expressions of growth rates
  - 2.8.4. The pattern of growth
  - 2.8.5. Stem analysis
- 2.9. Tree biomass
- 3. Measuring Tree Crops
  - 3.1. Parameters describing even-aged crops of one species
    - 3.1.1. Age
    - 3.1.2. Numbers of stems per hectare
    - 3.1.3. Diameters
    - 3.1.4. Basal area
    - 3.1.5. Height
    - 3.1.6. Form
    - 3.1.7. Crown size and canopy closure
    - 3.1.8. Volume per hectare
    - 3.1.9. Biomass per hectare
    - 3.1.10. Growth
  - 3.2. Descriptions of even-aged crops of more than one species
  - 3.3. Parameters describing uneven-aged crops of a single or, more commonly, several species
    - 3.3.1. The diameter and basal area frequency distribution
- 4. Forest Inventory
  - 4.1. Planning and executing a forest inventory
    - 4.1.1. The inventory report - part I
    - 4.1.2. The execution of the field work and its control
    - 4.1.3. The inventory report - part II
  - 4.2. Recurrent forest inventory
    - 4.2.1. Field work for recurrent inventory with permanent plots - in simple crops such as plantations
    - 4.2.2. In crops with a complex structure

## 5. Statistical Principles in Forest Inventory

### 5.1. Definitions

#### 5.1.1. Elementary statistical calculations

### 5.2. The selection of sampling units

#### 5.2.1. Subjectivity versus objectivity

#### 5.2.2. Subdivision of a population

#### 5.2.3. The size and shape of sampling units

#### 5.2.4. Probability in selecting sampling units

### 5.3. Measurements and calculations in inventory

### 5.4. Sampling designs

#### 5.4.1. Systematic sampling

#### 5.4.2. Random sampling

### 5.5. Recurrent forest inventory

#### 5.5.1. Recurrent forest inventory using only permanent sample plots

#### 5.5.2. Recurrent forest inventory using only temporary sample plots

#### 5.5.3. Recurrent forest inventory using both permanent and temporary sample plots

## 6. Site Assessment

### 6.1. Reasons for assessing the potential production of a site

### 6.2. A classification of the methods used in site assessment

#### 6.2.1. Assessment for land allocation and development planning

#### 6.2.2. Assessment to aid in the choice of species and prediction of growth

#### 6.2.3. Site assessment in plantations for forecasting growth and yield

## 7. Forest Growth Models

### 7.1. Uses of growth models

### 7.2. A classification of growth models of forest crops

### 7.3. Growth models for even-aged crops of one species based on average stand parameters

#### 7.3.1. Constructing a simple growth model or yield table

#### 7.3.2. Variable stocking growth models

### 7.4. Stand prediction growth models for even-aged crops

#### 7.4.1. Distance independent models

#### 7.4.2. Single tree distance dependent models

### 7.5. Stand prediction in crops of mixed species and age

## Appendices

### 1. The graduation of a Biltmore stick

### 2. The systematic errors in applying Huber's and Smalian's formulae to a frustum of a cone

### 3. Volume by height accumulation

4. The derivation of Schneider's formula for the current annual increment percent in basal area from an increment boring
5. Derivation of formulae quoted in Section 5.1.1.7.
6. The derivation of formulae for ratio sampling
7. Formulae in recurrent forest inventory with partial replacement of sampling units
8. Examples of static and dynamic growth models from Tanzania

#### Sections for Advanced Students

##### 1. Measurements

- 1.1.2.1. Rules for assessing the number of significant digits in calculations

##### 2. Measuring Single Trees

- 2.4.2.1. Solids of revolution

- 2.7.2.4. Tree volume by height accumulation

- 2.7.4.3.4. Bias in and efficiency of volume tables

- 2.7.4.5. Mathematical models relating  $d$  and  $h$  with volume calculated by integration

- 2.7.4.6. Compatible volume tables and taper functions

##### 3. Measuring Tree Crops

- 3.1.3.1.2. The Beta and Weibull distributions

- 3.1.8.2. Volume estimation using point sampling

- 3.1.8.5. Volume distributions

- 3.1.8.5.1. Volumes per hectare to different top diameters

- 3.1.8.5.2. Volumes per hectare by categories of tree size

- 3.3.1.1. The de Liocourt or negative exponential model

##### 4. Forest Inventory

##### 5. Statistical Principles in Forest Inventory

- 5.1.1.4. Variances of functions

- 5.1.1.7. The number of sampling units to achieve a desired precision

- 5.2.4. Probability in selecting sampling units

- 5.2.4.1. The theory of 3P sampling

- 5.2.4.2. An application of 3P sampling with a Spiegel relaskop

- 5.2.4.3. Other applications of sampling with unequal probability

- 5.2.4.3.1. Line sampling with an angle gauge

- 5.2.4.3.2. Intersect sampling

- 5.2.4.3.3. Sequential sampling

- 5.2.4.3.4. Importance sampling

- 5.4.1. Systematic sampling

- 5.4.2.1.1. Unrestricted random sampling

-The ratio estimate and its confidence limits

- The regression estimate and its confidence limits
- 5.4.2.1.2. Stratified random sampling
- 5.4.2.1.3. Cluster sampling
- 5.4.2.1.4. Double or two-phase sampling
- 5.4.2.2. Multi-stage sampling
- 5.5. Recurrent forest inventory
- 5.5.1. Recurrent forest inventory using only permanent sample plots
- 5.5.2. Recurrent forest inventory using only temporary sample plots
- 5.5.3. Recurrent forest inventory using both permanent and temporary sample plots
- 6. Site Assessment
- 7. Forest Growth Models
- 7.3.1.2. Use of maximum mean annual increment as an index of site quality
- 7.3.2. Variable stocking growth models
- 7.4. Stand prediction growth models for even-aged crops
- 7.4.1. Distance independent models
- 7.4.2. Single tree distance dependent models
- 7.5. Stand prediction in crops of mixed species and age

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