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

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Összefoglalás

Measuring Trees and Forests
Second edition
Michael S. Philip, Honorary Reader, Department of Forestry, University of Aberdeen, UK

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.

erdődinamika, lékdinamika, szukcesszió
erdőgazdálkodás
módszertan: elemzés, statisztika
módszertan: modellezés
Megjegyzések

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Tartalom:

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

Címszavazva - VA

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