

• Excerpts & Abstracts •

NATURAL REGENERATION OF TROPICAL MONSOON FOREST: THE PHILIPPINE DIPTEROCARP FOREST*

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A B S T R A C T

The dipterocarp forest of the Philippines, a monsoon forest, occurs throughout the Islands, from the plains to an altitude of about 800 meters, covers 8,968,000 hectares — 30% of the total land area and 57% of the forests of the country, and is the basis of a major industry. Its composition, density, form and distribution vary by regions and climatic types. It has a generally unevenaged form varying from balanced to unbalanced distribution throughout a wide range of diameter classes. Dipterocarp species need partial shade during germination to pole stage, gradually becoming light-loving towards maturity and intolerant upon reaching the dominant position. Such form, size distribution and growing habit lends itself to a selection system of silviculture.

Observations on natural regeneration show that: (1) In the virgin dipterocarp forest there are abundant reproduction and generally a good number of young trees, (2) plenty of reproduction are left after logging, (3) there is more reproduction in the logged-over area where same big trees were left after logging, (4) reproduction is much favored where the ground has been disturbed but with partial shade accorded by bigger sized trees, (5) if left undisturbed, the logged-over area will again be dominated by the climax vegetation (dipterocarps) through stages of plant succession, the length of time depending on the degree that the forest environment has been changed by logging, (6) reproduction and severely injured young trees die due to intense insolation by sudden opening of the canopy brought about by cutting most of the big trees and damaging most of the trees not felled, and (7) where logging has not abruptly changed the forest environment and where partial opening were made by partial cutting as in selective logging, development of reproduction and young trees is fostered.

Selective logging for harvesting the mature timber harmonizes with and promotes successful natural regeneration of the dipterocarp forest.

* The paper was submitted to the Ninth Pacific Science Congress to be held in Bangkok, Thailand on Nov. 18-Dec. 9, 1957.

Such method of harvesting has been adopted as the program of the Government in dipterocarp forest. The minimum residual stand required of timber licenses under this program is 60% of the Philippine mahogany species, other softer dipterocarps, *Dipterocarpus* and *Anisoptera* species. The method of controlling cutting is tree marking. Felling and yarding techniques are being applied to minimize damage and destruction to the future crop trees. Disciplinary measures consisting of a fine on trees designated as residual growing stock which are destroyed or severely injured, confiscation of bond deposits, suspension of operation or cancellation of license are intended to insure success of natural regeneration and protection of the residual stands. About 7,700 hectares of logged-over areas have good residual stands as a result of selective logging measures undertaken to promote natural regeneration.

Available growth data, though inadequate, indicates the possibility of continuity of operation of forest industries through the selection system of silviculture.

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HAGAKHAK (DIPTEROCARPUS WARBURGII) AND PALOSAPIS (ANISOPTERA THURIFERA) STANDS IN THE PLANTATION

By:

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A B S T R A C T

The study on the life history of any species is indispensable if it is to be put under sustained yield management. In fact no sound management can be effected without a fair knowledge of the silvicultural characteristics of the species. The present paper which deals with the behavior of hagakhak (*Dipterocarpus warburgii*) and palosapis (*Anisoptera thurifera*) in the Makiling National Park Dipterocarpus plantation covers chiefly the growth of the species. The study was conducted from July, 1950 to February, 1951, covering a period of eight months.

Growth measurements of the diameter, total heights, clear length and crown width were taken. Diameter measurements were taken at breast high (1.3 meters from the base of the tree) with the use of a caliper. Total heights and clear lengths were measured with the use of an Abney hand level calibrated in per cent.

Crown width was measured to the nearest tenth of a meter with the use of standard chain.

The results found in the study are the following:

1. Young hagakhak trees in plantation showed a comparatively fast rate of growth, consequently, five years difference in age will mean a significant difference in the sizes of trees.

2. The total heights of hagakhak trees 17 years old, and larger than 5 centimeters in diameter, were greater than those of the 16-year-old palosapis trees; in the smaller trees, the heights of the seventeen-year-old hagakhak trees were significantly larger than the 16-year-old palosapis trees in the Bureau of Forestry Plantation, Makiling National Park. Based on mean annual growth, the former species has a faster rate of growth than the latter species.

3. The 17-year-old hagakhak trees do not have longer clear length development than the 16-year-old palosapis trees.

4. The development of clear length tends to increase in rate with the increase in diameter of 17-year-old hagakhak trees and 16-year-old palosapis trees.

5. For every meter increase in crown spread, there is a corresponding increase of 0.22 meter in length in the younger hagakhak trees, 1.44 meters in the older hagakhak trees, and 0.75 meter in the palosapis trees.

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PREPARATION OF LOCAL VOLUME TABLE FOR MOLAVE (VITEX PARVIFLORA, JUSS.)

By
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A B S T R A C T

A volume table is a very valuable tool for general inventory and management purposes. It facilitates the determination of volume of trees in the forest or in the plantation for the calculation of growth and construction of yield tables.

But the preparation of a volume table requires lengthy and tedious calculation so that its method of preparation should also be considered.

This paper proposes a new method, the simplicity, practicability and comparative accuracy of which are essential needs in the Philippines or in other regions where there is a shortage of trained mensurationists.

The construction of this volume table was based on diameter breast high, merchantable length and form factor of 319 trees measured in the molave plantation, Ha. 13-A and 14-B of the Makiling National Park, College, Laguna.

In this study, it was found that the form factor or taper of the molave trees in that particular area decreases as its stem increases in length, that the average form factors under each height class show lesser variation than within each diameter class; and that the form factors within each diameter class regardless of the height show greater variation than the form factors under each height class regardless of diameter.

The usefulness of this volume table or any volume table is greatly governed by its efficiency. This table has an error of —.153 cu. meters or .329% which is very negligible. Therefore, the use of this volume table could be strongly recommended in determining the volume of Molave Trees in the Makiling National Park, Los Baños, Laguna.—V.P.V.

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IDENTIFICATION OF FOREST TREES BASED ON PURELY MORPHOLOGICAL AND ECOLOGICAL CHARACTERS

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A B S T R A C T

Timber and its derived products are indispensable necessities in everyday life so that often times their identity is required to satisfy the specifications and purposes of the customer, the forest industry and its allies. To be able to meet this requirement, the correct identification of forest trees which produce them is obviously necessary. This calls for a practical, convenient and satisfactory method such as the use of prepared keys which should be as non-technical as possible, and based on characteristic features which are easily observed. Unfortunately, the present system based on sexual reproductive structures seems impractical because the presence of these organs depends on the season as well as the age of the plants. On the other hand, morphological and ecological characters are usually present throughout the life of the trees so that as taxonomic organs, identification becomes practical yet scientific in making much more distinct the species cleavage.

In the identification of the common forest trees in the Philippines, the following morphological and ecological character should be learned: (1) of growth; (2) habitat; (3) nature of the bark; and (4) gross features of the leaves.

Two keys are presented to be used for forest tree identification. The first key is based principally on the gross characters of the leaves and is intended for use when the leaves are accessible as in the case of small trees that can be

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easily climbed. The second key is based principally on the nature of the bark and is an alternative to the former when the leaves are inaccessible as in the case of matured and over-matured trees. To the bushman and the forester, who have to depend cruising, scaling and logging work, have to depend mostly on the bark features, the latter key may prove to be more useful.

Identification may be also achieved by the use of the conspectus of these species. A conspectus of a number of our forest trees is also presented in this paper.

Inasmuch as morphological and ecological character may prove to be essentially valuable in tree identification, it is hoped that further study along this line be carried on to obtain a more comprehensive information about our for-

est trees for the preparation of a card—sorting perforated key which may be handier and easier to use in the field, and perhaps more suitable for the use of the forester and the laymen.

* * *

UPWARD TRENDS IN FOREST PRODUCTS OUTPUT

Rome, 13 November—Although little change was recorded in the total timber harvest from the world's forests, the output of wood for industrial purposes in 1956 increased by about 20 million cubic meters (two percent) over that of 1953, the Food and Agriculture Organization (FAO) reported today.

The FAO Yearbook of Forest Products Statistics
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* Yearbook of Forest Products Statistics, 1957 (Rome, November, 1957) US \$2.50 or 12/6-FAO/-57/11/7792.

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Department of Public Works and Communications
BUREAU OF POSTS
Manila
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<i>Publisher</i> , Student Body and Alumni, College of Forestry	College, Laguna
<i>Printer</i> , Community Publishers, Inc.	1986 Herran St., Manila
<i>Office of Publication</i>	College, Laguna

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In case of publication other than daily, total number of copies printed and circulated of the last issue dated September, 1957; Volume X, No. 1.

- Sent to paid subscribers **520**
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