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Tropical Timbers of the World

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Reprint 2007

The photo on the cover was obtained from the tropical rain forest in Sarawak, Malaysia. Most canopy trees are dipterocarp species for producing nice timber. We have been monitoring their dynamics from the view point of forest conservation and canopy biology.

From Dr. Tomoaki Iche of Kochi University, Japan.

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Requests for copies of illustrations contained in this handbook should be directed to the Forest Products Laboratory, USDA Forest Service, P.O. Box 5130, Madison, WI 53705.

Foreword

Few days go by at the Forest Products Laboratory without questions from around the world about properties and uses of tropical woods. Interspersed with the queries about such U.S. species as Douglas-fir and white oak are requests about arariba from Brazil, sipo from Ivory Coast, or kapur from Malaya.

Such questions come logically to the Forest Products Laboratory, because it is the official wood identification arm of the Federal government. In the more than 70 years the laboratory has been answering such questions, research concentration has been primarily on determining properties and uses for U.S. species. But as lumber imports from the tropics are increasing, so are questions about foreign woods. As international trade increases, people need more information on exotic species, their properties, and what woods can be substituted for those no longer available.

To answer these questions, information has to be gleaned from publications by other scientists around the world. The average person who needs technical data does not have access to the hundreds of rare publications that contain the information. Even if such documentation were pulled together from a variety of sources, the seeker might discover the information was given in several languages and often based on nonuniform test methods, descriptions, or measurements. How can one compare and choose?

To fill this need, Martin Chudnoff has compiled information on the better known tropical species, put the data on a common basis, and assembled it in a brief, useful form. To accomplish this, he drew on his training as a forester and wood technologist and his many years of forest products research in tropical and subtropical areas of the world.

This volume is the product of his dedicated work.

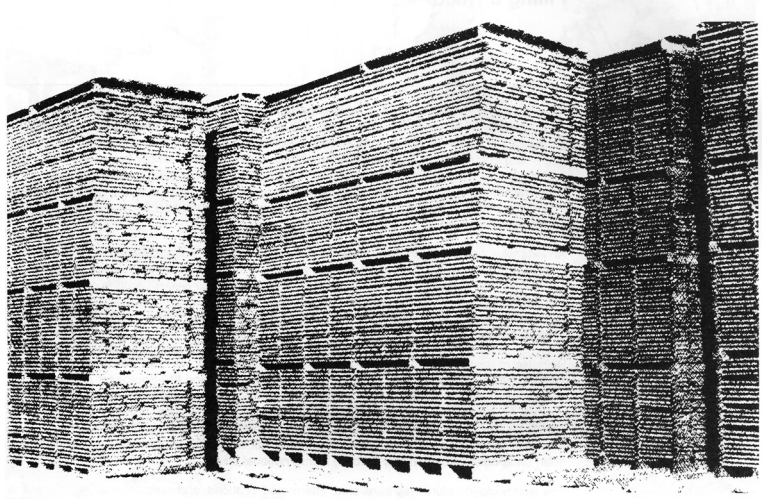
Max A. Davidson
Forest Products Laboratory, retired

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Introduction

M 150 272-17



Heartwood lumber being air-dried at a large industrial complex in South America. The lumber will be further dried in a kiln before it is processed for export markets.

Filling a Need

Over the past two decades U.S. lumber imports from the tropics have increased fourfold. Plywood trade, mostly from Asian sources, has soared fortyfold and now equals our domestic production. Log imports, though, have decreased drastically from about 100 million board feet (log scale) in the 1950's to 30 million currently. Much of the world timber trade now is in the form of processed material. A wide array of tropical wood species and species groupings are now available to U.S. processors. Many are already well known on the European markets. This surge in supplies from overseas includes softwoods, hardwoods, decorative species, and utility woods.

An extensive body of foreign literature describes the properties of tropical woods, but much of this literature is not readily available to interested users. In this country the Forest Products Laboratory has issued "Information Leaflets" or "Forest Wood Series" reports on some species of importance, but few are in print. The most recent comprehensive document, "properties of Imported Tropical Woods," (3) contained a description of about 100 tropical genera.

Because of the ever-increasing demand for reference material, we have prepared this more extensive data source. Parts I—Tropical America, II—Africa, and III—Southeast Asia and Oceania contain concise descriptions of tree and timber characteristics for about 370 tropical species or generic groupings. The actual number of botanical entities, however, is many more. Almost all the information was compiled from world literature. This required an extensive search of abstracts and then an amassing of a rather formidable documentation. Focus has been on species already highly favored in international trade.

The worldwide literature was translated, interpreted, reduced, and synthesized. Only a small part of the information presented in this volume is based on research conducted by the USDA Forest Service.

Species are listed alphabetically by scientific name and are grouped according to regional origin—Tropical America, Africa, and Southeast Asia and Oceania. Each of these parts supplies condensed information about particular species or species grouping. Technical data and descriptive information presented here follow the format used by R. H. Farmer (2)

Part IV classifies the physical and mechanical property data from parts I, II, and III into groupings that permit comparisons even though methods of testing may have been quite different. A guide to several major use categories is also included. All data are presented in table form that allows rapid scanning or easy transfer to card sorts or input to a computer retrieval system. A summary reference sheet attached to the table can be used to decode physical and mechanical properties classified in table IV-1.

M 150 273-17



Modern logging equipment, including portable high lead rigging, is now in use throughout the tropics where tree size and species concentrations are economically favorable.

Five appendixes supply additional Information. Appendix A is a partial list of forest products references, almost all of which were used in this compilation. They are divided into those with worldwide coverage and those specific to Tropical America, Africa, and Southeast Asia.

Appendix B is a list of generic synonyms. If a particular species or species grouping cannot be found in the text, this list of name changes should be checked.

Appendix C may be helpful where more than one genus makes up a trade grouping. For example, the name *Neesia* may be known, but the data are filed under *Durio* and *Neesia*.

Appendix D furnishes Information on the derivation of comparable toughness values given in table IV-1.

Appendix E offers tables that can be used to assemble the dry kiln schedules suggested for the various timbers.

If only the trade name of a wood is known, the Index of trade names can be used to obtain cross references to scientific names and entry to the species descriptions. For a listing of the thousands of common names used in the producing countries, see the catalog prepared by Boutlje (1).

Scientific Names

Species information is arranged alphabetically by generic name within the three main tropical regions. Where more than one species is described within a genus, the material is presented alphabetically according to specific name or group trade name. Where two or more species in a genus make up a commercial grouping, the composite is designated by spp. (e.g., *Peltogyne* spp.).

We have attempted to use currently accepted nomenclature, but well-known synonyms are also given (e.g., *Ochroma pyramidale* syn. *Ochroma lagopus* or *Nauclea diderrichii* syn. *Sarcocephalus diderrichii*). Some commercial timber groupings may include more than one genus (e.g., the wood marketed as Resak includes *Cotylelobium* spp. and *Vatica* spp.).

Many genera are native to more than one region (e.g., *Podocarpus*, *Pterocarpus*, *Terminalia*), but *Ceiba pentandra*, *Symphonia globulifera*, *Andira inermis* and *Rhizophora mangle* are the only species listed that are indigenous to two or more regions. However, many species from one region have been introduced into the other two, either as ornamentals or for the production of such products as timber, tannin, latex, gums, and resins. Para rubber tree, *Hevea brasiliensis*, is native to Brazil but is most extensively cultivated in Africa and Asia. Teak, *Tectona grandis*, is a favored plantation species in tropical America and West Africa but is native to Southeast Asia. The information on these and other exotics is arranged in their region of origin.

To further complete botanical affinities, family names are also given. Plants developing woody tissue are classified in about 250 families. Species and species groupings in this compilation can be placed in some 70 families. The largest number, by far, belongs to the Leguminosae, followed by Meliaceae, Lauraceae, and Moraceae. Nineteen species or species grouping of the 4 gymnosperm or softwood families of Araucariaceae, Cupressaceae, Pinaceae, and Podocarpaceae are also included.

Trade and Other Common Names

The scientific name is followed by one or more trade names. These come into use after years of marketing on national and international levels. Sometimes the trade name is merely a repetition of the generic name (e.g., afzelia, albizzia, alstonia). Often when there is a superficial similarity to a Temperate Zone timber, but no botanical affinity, names such as Queensland-maple and silky-oak are used. Honduras mahogany, is a trade name for *Swietenia macrophylla* because shipments, at first, were mostly centered in Honduras. Yet the name applies to timber now harvested from Mexico southward to eastern Bolivia. The name mahogany, with a geographical modifier, also refers to species of *Khaya* from Africa and to botanically unrelated species of *Shorea* from the Philippines.

A few other common names, mostly of local use only, are also given. Some woods may have dozens of such names, changing from country to country and from district to district within countries. All of the trade names, but only a few of the common names, are indexed in this volume.

Distribution

Information on growth ranges and site preferences is given. Gregarious species are also noted. Most of the species or species groups described here are found growing between the Tropic of Cancer and Tropic of Capricorn, some 50° of latitude. Included are a few species growing outside of the tropical belt (e.g., *Nothofagus* spp. and *Fitzroya cupressoides* native to Chile and Argentina and some eucalypts from Australia).

Most of the species described are available to world markets only in rather small volumes. To obtain larger supplies for a particular end use, it may be necessary to accumulate timbers having similar characteristics from several botanical groupings. Even those species growing in pure Stands over large areas may be limited in supply. For example, Parana-pine forests have been heavily cut over in Brazil, and the area is being restocked mainly with exotics. *Virola* spp., once abundant for plywood production in the Guianas, must now be imported from other regions to meet their veneer needs. Okoume, a highly favored plywood species on the European market, is no longer available from the First Zone (mostly coastal) of Gabon. Because of this transient characteristic of the resource, we have not attempted to indicate current or future availability of the species listed.

Distribution within the tropics is highly variable. Some species are found in coastal tidelands (red

mangrove, *Rhizophora mangle*), swamp forests (ramin, *Gonystylus bancanus* or banak, *Virola* spp.), on low coastal plains, and along riverbanks (cativo, *Prioria copaifera* or mora, *Mora excelsa*). Others are established on low-temperature, high-mountain sites (roble, *Quercus* spp. or Benquet pine, *Pinus insularis*). All of the above species occur in rather pure forest stands, but this is not typical of the tropical forest as a whole. Where there are no special atmospheric, geological, topographic, or edaphic conditions, individuals of the most common species found in lowland tropical forests are widely dispersed, seldom making up 10 percent of the volume, and often much less.

The Tree

Tree form and size are emphasized under this heading. Some specialty woods are milled from very small stems (e.g., African blackwood, *Dalbergia melanoxylon* and West Indian satinwood, *Zanthoxylum flavum*). Other timbers come from trees that soar to heights of 150 to 200 feet and have log diameters of 8 feet and more (e.g., okoume, *Aucoumea klaineana* or kapur, *Dryobalanops* spp.). Trunks of many species have buttresses that may reach heights of 15 to 25 feet (e.g., obeche, *Triplochiton scleroxylon* or mora, *Mora* spp.).

The Wood

General Characteristics: This section stresses the appearance of wood of individual species and species groupings. Heartwood colorations, unusual changes on exposure to light or air, and differentiation, if any, from sapwood are described. Woods with high luster or golden cast due to the way light is reflected are noted. If anatomical elements are large and irregular, the wood is described as having coarse and uneven texture. If these same features are small and evenly distributed, the texture is fine and uniform. Grain defines the arrangement or alinement of wood tissue—straight, spiral, or interlocked. Interlocked grain is most common in tropical timbers and is due to an alternating right- and left-hand spiraling of the grain. If quartersawn, this produces a ribbon or roey figure. Other grain irregularities, enhanced by various sawing or slicing techniques, can develop other kinds of figure (e.g., curly, feather, fiddleback, etc.). Distinctive scents and tastes are also noted. Silica percentages, if significant, are given. The literature suggests that there is little blunting of cutting tools unless silica accumulations are above 0.5 percent.

Almost all woods have constituents that are allergenic or toxic to someone, including our native white pine and paper birch. Most people, though, are unaffected by most woods. Dust generated in woodworking may irritate skin and mucous membranes and even cause nosebleeds and respiratory disorders. Timbers that are particularly toxic are noted. Woods with gummy, oily, or resinous exudates are also indicated.

Weight: Specific gravity or density may be related to important wood attributes such as mechanical strength, shrinkage, paper-forming properties, and cutting forces required in machining. Often in assessing the use potential of a species, specific gravity receives first attention.

Basic specific gravity is the ratio of wood density to the density of water at 4° C and is calculated from the oven-dry weight and volume in the green condition. This may range from less than 0.1 for balsa, *Ochroma pyramidale* to about 1.1 for lignumvitae, *Guaicum* spp. Density calculated from weight and volume when air dry, usually at a moisture content of 12 percent, is also given. This may range from about 10 to 80 pounds per cubic foot (pcf) for commercial species.

Mechanical Properties: It must be emphasized that the mechanical properties presented here by species are taken from the world literature. Sampling and testing procedures have varied considerably. Values are given so that comparisons between species can be made as well as selection for targeted end uses. However, the data reported may not be acceptable to regulatory bodies as a basis for assigning design properties. Such interests are beyond the scope and intent of this document.

Sources from which the strength data were obtained are listed in the Literature Cited sections at the end of each geographical part.

Data are given for strength tests in the green and dry condition. These include bending strength (modulus of rupture), stiffness in bending (modulus of elasticity), compression parallel to the grain (maximum crushing strength), Janka side hardness, and toughness (based on either the Amsler or the FPL-Madison type machines).

Most test results reported here are based on the ASTM D 143 procedures using either 2-inch or 1-inch specimens, British Standard No. 373 using 2-centimeter material, or Norme Francaise B51-007, B51-008, and other standards in this series, also a 2-centimeter standard. In the French data, modulus of rupture was calculated using beam depth to the 10/6 power instead of the square of the depth used to obtain U.S. and British bending strength values. The data based on French standards were adjusted to be comparable in this presentation. There are other differences in testing methods. At the Instituto de Pesquisas Tecnicas, São Paulo, bending strength is based on beams 2 by 2 by 30 centimeters, center-loaded over a 24-centimeter span. Modulus of elasticity, though, is calculated from test beams 6 by 6 by 100 centimeters, center-loaded over an 84-centimeter span.

Drying and Shrinkage: Note is made of the response of individual woods to air-drying and kiln-drying and whether or not there is degrade due to checking, warp or collapse.

Percent shrinkage values (volumetric, radial, tangential) from the green to oven-dry condition or green to air-dry condition are given. Movement ratings indicate dimensional stability in service and are based on the sum of percent radial and percent tangential dimension changes corresponding to a change in exposure from 90 to 60 percent relative humidity. Ratings used are:

Small	Under 3.0 percent
Medium	3.0 to 4.5 percent
Large	Over 4.5 percent

Appendix E presents a series of tables that can be assembled into kiln schedules where these are suggested for particular species or species groupings. If no kiln schedules are found in the literature, none are recommended.



M 150 273-6

Highly perishable cuangare (*Dialyanthera* spp.) and banak (*Viola* spp.) logs harvested from coastal lowlands in southwest Colombia are ready for pond storage

Working Properties: Much of the information given on working properties of individual species is highly subjective. Described are ease of working with hand and machine tools, tendencies to torn or chipped grain, smoothness of finish cut, dulling of cutters, and ease of veneering. Nailing, screwing, or gluing characteristics may be included as well as steambending properties if well suited for this purpose. If working the wood is reputed to cause skin or mucous membrane irritations, this is mentioned again.

Durability: Resistance of the wood to attack by decay fungi, insects, and marine borers is described. Ratings are based on laboratory assays, field stake tests, or performance under actual use conditions.

M 150 273-11



If natural durability is good and turnover is frequent, logs can be held in "dry" storage until processed.

Heartwood decay resistance classifications are based on ground contact and are:

Classification (2)	Approximate service life
	<i>Years</i>
Very durable	More than 25
Durable	15-25
Moderately durable	10-15
Nondurable	5-10
Perishable	Less than 5

Sapwood of all species will rate perishable. If not in ground contact and kept dry, all woods could be free of rot and have an extended service life. Consideration must also be given to vulnerability to attack by Lyctus beetles, subterranean and dry-wood termites, and other insects. If data are available, resistance to such attack is reported here. Weathering characteristics and performance under particular kinds of chemical exposure may also be noted.

Preservation: Treatability of sapwood and heartwood using either open tank or pressurevacuum processes is described. Ratings may range from permeable, where 15 to 20 pcf and more of preservative solutions are absorbed with complete or deep chemical penetration to extremely resistant if absorption is only 2 to 3 pcf or less and lateral penetration is superficial. There is no standard treatability test. Ratings may be based on laboratory trials using a wide range of specimen sizes, with or without end coatings, or actual commercial treating plant experience.

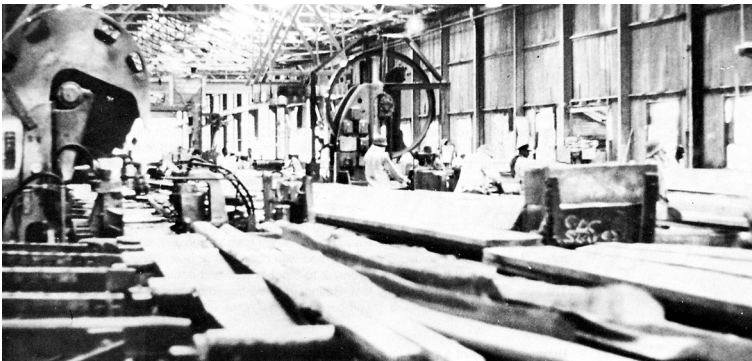
Uses: Suitability of a wood for particular applications may be based on indigenous uses in underdeveloped regions or perhaps long experience in export trade but with little or no experience

on U.S. markets. As an example, Jongkong, *Dactylocladus stenostachys*, is treated with oil and used for shingles in Sarawak. This wood may not be marketable elsewhere for the same purpose. Demand exists overseas for woods particularly suitable for produce boxes, which are rarely used in the U.S. economy. Nevertheless, the lists of uses indicate the properties and working characteristics of the wood and may suggest applications still not realized. Often trees formerly classified as uneconomic or weed species are now in high demand on world markets. Use categories, then, should not be considered restrictive.



M 150 272-11

Sash gang saws are used in Surinam for log breakdown. About 30 species are classified as available in quantity from the region, yet only 3 species make up 90 percent of the lumber exports.



M 150 273-8

In Guyana band mills are preferred for log breakdown and resaw.

If a tree is noted for the yield of products other than wood (gums, latex, fiber, tannins, nuts and fruits, etc.), this is also indicated.

Additional Reading

The species descriptions are based on a compilation of world literature. Presentations are rather concise to fit the format used. Material for a few species is based on only one or two sources; more often dozens were used. Usually three or four references are cited and listed at the end of each regional section.

Several thousand documents, many of them long out of print, were consulted to develop this data base. For those with an interest to read further, a few comprehensive references are given in appendix A.

Literature Cited—Introduction

1. Boutlje, J. B. 1980. Encyclopedia of world timbers: Names and technical literature. Swedish For. Prod. Res. Lab. STFI—meddelande Serie Anr 611. Stockholm.
2. Farmer, R. H. (Editor). 1972. Handbook of hardwoods. H. M. Stationery Office, London.
3. Kukachka, B. F. 1970. Properties of imported tropical woods. USDA Forest Service Res. Pap. FPL-125. Forest Product Laboratory, Madison, Wis.

Part I—Tropical American Species¹

M 150 272-12



Planalto forest south of Santarém in the Rio Curuá-Una region, Brazil. About 60 percent of the volume is in species considerably denser than U.S. commercial woods (basic specific gravity over 0.70).

¹ Numbered references listed under Mechanical Properties and Additional Reading for each species appear in Literature Cited—Tropical American Species, beginning on p. 172.

Tree and Wood Characteristics

Alexa imperatricis

Haiari

Family: Leguminosae

Other Common Names: Haiariballi (Guyana).

Distribution: Found in the Venezuelan Guiana, Guyana, Surinam, and the Brazilian Amazon region. Often dominant on the light-colored sands of the northwest and upper Mozaruni district and the Pakaraima Mountains in Guyana.

The Tree

Unbuttressed, well formed, with small oval crowns. Grows to 36 in. in diameter and 100 ft high on favorable sites, but are usually 20 to 24 in. in diameter and less than 100 ft high. The bole is cylindrical and often 70 ft long.

The Wood

General Characteristics: Heartwood brownish yellow but occasionally somewhat darker; not sharply differentiated from the light yellow to grayish-yellow sapwood, 3 to 4 in. wide. Luster is medium to low; generally straight grained; rather coarse textured; odorless and tasteless when dry.

Weight: Basic specific gravity (ovendry weight/green volume) reported to be 0.46 to 0.55 in Guyana; 0.41 in the Venezuelan Guiana. Air-dry density about 32 pcf.

Mechanical Properties: (1-in. standard)

Moisture content	Bending strength	Modules of elasticity	Maximum crushing strength
	<i>Psi</i>	<i>1,000 psi</i>	<i>Psi</i>
12% (24)	10,590	1,580	5,620

Janka side hardness is 690 lb and the Forest Products Laboratory toughness is 118 in.-lb (5/8-in. specimen).

Drying and Shrinkage: Lumber has a marked tendency to collapse during seasoning. Close piling for air-drying and the use of high humidities and low temperatures during the early stages of kiln-drying are suggested. Veneers are slow to dry. Jet-drying of 1/16-in. veneer at 285° F resulted in buckling, collapse, and splitting. Kiln schedule T2-C2 is suggested for 4/4 stock and T2-C1 for 8/4. Shrinkage green to ovendry: radial 4.0%; tangential 8.5%; volumetric 11.7%. Movement of seasoned wood is classified as large.

Working Properties: Haiari is reported to work easily and finish satisfactorily. Nail withdrawal resistance is higher than would be expected from its density. Rotary cutting trials of 1/16-in. veneer gave smooth surfaces and uniform thickness; rough cutting occurred in 1/8-in. veneer. Reported to have rather unfavorable gluing properties when made into plywood.

Durability: Reported to be highly resistant to decay, but freshly cut logs are very susceptible to damage by pin-hole borers.

Preservation: Both sapwood and heartwood very easy to treat. Absorptions over 9 pcf with uniform penetration obtainable by hot and cold bath as well as pressure-vacuum systems.

Uses: Haiari is suitable for interior construction, boxes, crating, general construction, plywood, and other uses requiring an easily worked wood of moderate strength.

Additional Reading

(24), (46), (60)

Summary Reference Sheet for Decoding Table IV-1

Color		Density		Movement	
Code	Color	Code	Density	Code	Movement
1	Whitish, pale brown, pale yellow, straw	1	Pcf <20	1	Small, under 3.0
2	Dark brown	2	20-30	2	Medium, 3.0-4.5
3	Pink or red tints, including red brown	3	30-40	3	Large – over 4.5
4	Other colors (black, purple, bright yellow, etc.)	4	40-50		
		5	50-60		
		6	>60		

Mechanical Properties (12 percent moisture content)						
Code	Bending strength (2-in. specimen) <i>Psi</i>	Stiffness (2-in. specimen) <i>Psi</i>	Crushing strength (2-in. specimen) <i>Psi</i>	Toughness (FPL 2-centimeter) <i>In.-lb</i>	Hardness, Janka side <i>Lb</i>	
1	<7,000	<1,000	<5,000	<180	<500	
2	7,000-9,500	1,000-1,400	5,000-6,000	180-270	500-800	
3	9,500-12,000	1,400-1,800	6,000-7,000	270-360	800-1,100	
4	12,000-14,500	1,800-2,200	7,000-8,000	360-450	1,100-1,400	
5	14,500-17,000	2,200-2,600	8,000-9,000	450-540	1,400-1,700	
6	17,000-19,500	2,600-3,000	9,000-10,000	540-630	1,700-2,000	
7	> 19,500	> 3,000	> 10,000	> 630	> 2,000	

Shrinkage			Hartwood Durability		Hartwood Treatability	
Code	Radial		Code	Classification	Code	Classification
	Green to air dry	Green to air dry	1	Very durable	1	Permeable
1	<3.0	<2.0	2	Durable <td>2</td> <td>Moderately resistant</td>	2	Moderately resistant
2	3.0-4.0	2.0-2.5	3	Moderately	3	Resistant
3	4.0-5.0	2.5-3.0	4	Nondurable	4	Extremely resistant
4	5.0-6.0	3.0-3.5	5	Perishable		
5	>6.0	> 3.5				

Table IV-2.—Uses for various tropical timbers of the world, compared to eight U.S. species

Name	Construction				Uses															
	Heavy	Light	Marine Use	Cross ties	Joinery/ millwork	Flooring	Shakes/ shingles	Recon- stituted Products ¹	Plywood	Decorative cabinet- veneers	Furniture/ cabinet- work	Turnery	Carvings	Musical instru- ments	Tool handles	Vats/ stanks	Coop- erage	Boxes/ crates	Specialty items	
																				Eight U.S. species for comparison
Eight U.S. species for comparison																				
<i>Acer saccharum</i>				X																
<i>Carya ovata</i>				X																
<i>Liriodendron tulipifera</i>				X																
<i>Pinus strobus</i>				X																
<i>Pinus taeda</i> ¹	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Pseudotsuga menziesii</i> ²	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Quercus alba</i>				X																
<i>Quercus rubra</i>				X																
Tropical Timbers of the World																				
<i>Acacia melanoxylon</i>				X																
<i>Acacia mollissima</i>				X																
<i>Adina cordifolia</i>				X																
<i>Azela</i> spp.	X		X	X																
<i>Bambusa nana</i> ²				X																
<i>Albizia lebbek</i>				X																
<i>Albizia falcataria</i>				X																
<i>Albizia</i> spp.				X																
<i>Alexa imperatricis</i>				X																
<i>Alstonia coriariensis</i> and <i>A. boonei</i>				X																
<i>Alstonia</i> spp.				X																
<i>Alseodaphne</i> spp.				X																
<i>Artocarpus</i> spp.				X																
<i>Artocarpus excelsus</i>				X																
<i>Anadenanthera macrocarpa</i>				X																
<i>Andira inermis</i>	X		X	X																
<i>Androstachys johnsonii</i>	X		X	X																
<i>Aniba</i> spp.	X		X	X																
<i>Aniba</i> spp.	X		X	X																
<i>Anisoptera</i> spp.				X																
<i>Antrocephalus chinensis</i>				X																
<i>Antrocephalus chinensis</i>				X																
<i>Antleris</i> spp.				X																
<i>Apeiba</i> spp.				X																
<i>Araucaria angustifolia</i> ²				X																
<i>Araucaria</i> spp.				X																
<i>Araucaria</i> spp.				X																
<i>Artocarpus</i> spp.	X		X	X																
<i>Aspidosperma</i> spp. <i>Araucaria</i>	X		X	X																
<i>Aspidosperma</i> spp. <i>Peroba rosa</i>	X		X	X																
<i>Astronium graveolens</i>	X		X	X																
<i>Aucoumea klaineana</i>	X		X	X																
<i>Aurantiella congolensis</i>	X		X	X																
<i>Aurantiella congolensis</i>	X		X	X																
<i>Bagassa guianensis</i>	X		X	X																
<i>Bakiaea insignis</i>	X		X	X																
<i>Bakiaea plurijuga</i>	X		X	X																
<i>Balionella toxisperma</i>	X		X	X																
<i>Balaocarpus</i> spp.	X		X	X																
<i>Balaocarpus riedelianum</i>	X		X	X																
<i>Balaocarpus riedelianum</i>	X		X	X																
<i>Berlinia</i> spp.	X		X	X																
<i>Berlinia</i> spp.	X		X	X																
<i>Bischofia javanica</i>	X		X	X																
<i>Bombacopsis quinata</i>	X		X	X																
<i>Bombax</i> spp.	X		X	X																
<i>Bowditchia</i> spp.	X		X	X																
<i>Bowditchia</i> spp.	X		X	X																
<i>Brachystegia utchinsii</i>	X		X	X																
<i>Brachystegia spiciformis</i>	X		X	X																
<i>Brachystegia</i> spp.	X		X	X																
<i>Brosimum</i> spp. (<i>Alicastrum</i> group)	X		X	X																
<i>Brosimum</i> spp. (<i>Utile</i> group)	X		X	X																
<i>Buchenavia capitata</i>	X		X	X																
<i>Buccia biceras</i>	X		X	X																
<i>Bumelia americana</i>	X		X	X																
<i>Bumelia arborea</i>	X		X	X																
<i>Burkea africana</i>	X		X	X																

Scientific	Name	Geographic region	Color	Density	Bending strength	Stiffness	Crushing strength	Toughness	Hardness	Movement	Other properties			
											Rad.	Shrinkage	Tan.	Durability (heartwood)
<i>Bursera simaruba</i>		AM	1	1-2	1	1-2	1	-	1	-	1	5	1	1
<i>Byrsonima</i> spp.	Gumbo-limbo	AM	3	4	5-6	4	6	2	5	-	1	3	4	1
<i>Cassipouira</i>	Serrette	AM	3	4	4	4	4	2	4	-	2	2	1	4
<i>Cassipouira</i> sp.	Panigewood	AS	3,4	6	4	6	4	1-2	4	-	2	1	1	4
<i>Callitris glauca</i> ?	White Cypress-pine	AS	3	2	3	2	4	1-2	4	-	2	2	1	-
<i>Calophyllum brasiliense</i>	Santa maria	AM	3	3	5	4	3-5	3	4	2	3	2-3	4	3
<i>Calophyllum</i> spp.	Bintangor	AS	3	3	4	4	4-5	2	5	2	3	2	3	3
<i>Calycophyllum candidissimum</i>	Degame	AM	1	5	7	7	6	5	6	4	4	4	4	1
<i>Campnosperma panamensis</i>	Salonga	AM	1	2	1	2	1	1	1	2	2	2	3	1
<i>Campnosperma panamensis</i>	Salonga	AM	1	2	1	2	1	1	1	2	2	2	3	1
<i>Canarium schweinfurthii</i>	African canarium	AF	1,3	2,3	2-3	2	1-2	2	2	2	3	3	3	4
<i>Canarium</i> spp.	Kedondong	AS	1,3	2,3	2-3	2	1-2	3	4	2	3	3	3	4
<i>Carapa guianensis</i>	African crabwood	AM	3	4-5	5	4-5	4-5	2	4	1-2	2	2-4	4	4
<i>Carapa procera</i>	African crabwood	AF	3	4	3-4	3	3	3	3	1	1	2	2	4
<i>Carrizana pyramidalis</i>	Albarico	AM	3	3	3	3	3	3	3	1	1	1	1	1
<i>Caryocar</i> spp.	Miquia	AM	3	3	3	3	3	3	3	1	1	1	1	1
<i>Caryocar</i> sp.	Miquia	AM	1,3	3,4	3	3	3	3	3	1	1	1	1	1
<i>Cassipouira</i>	Pilarwood	AF	1,3	3,4	5-6	4	5-6	-	4-5	2	4	5	5	4
<i>Cassipouira malosana</i>	Berangan	AS	1,2	4	3	2	3	-	4-5	2	4	5	5	4
<i>Castanopsis</i> spp.	Casuarina	AS	3	2	7	7	7	2	7	3	5	5	5	3
<i>Casuarina</i> spp.	Casuarina	AS	1,3	3	3-5	4	3-5	2	7	3	5	5	5	3
<i>Catostemma</i> spp.	Baromalli	AM	1,3	4	1-2	2	1	2	2	1	1	1	1	1
<i>Cecropia peltata</i>	Spanish-wood	AM	3	2	2	2	2	2	2	1	1	1	1	1
<i>Cedrela</i> spp.	Spanish-cedar	AM	3	2,4	3	2,3	2,3	2	2-3	1	1	1	1	1
<i>Cedrela</i> sp.	Cedro-rana	AS	3	3	3	3	3	2	2-3	1	1	1	1	1
<i>Cedrelinga catenaeformis</i>	Cedro-rana	AM, AF	1,3	1-2	1	1	1	1	1	1	1	1	1	1
<i>Celtis</i> spp.	African celtis	AF	1	3-7	1	1	1	1	1	1	1	1	1	1
<i>Centropodium</i> spp.	Araba	AM	1,3	4-5	5-6	5	2-7	4	5	2	2	5	5	2
<i>Cephalosphaera usambarensis</i>	Mitambara	AF	3	3	3	3	4-6	4	3	3	4	4	4	3
<i>Chlorophora ficoides</i>	Fusic	AM	1,2	4	3	3	3	2-3	2	3	4	5	5	2
<i>Chlorophora ficoides</i>	Fusic	AM	1,2	4	3	3	3	2-3	2	3	4	5	5	2
<i>Chloroxylon swietenia</i>	East Indian satinwood	AS	1	5	3-4	3	3-5	4	7	1	2	1	1	4
<i>Chukrasia tabularis</i>	Chickcrassy	AS	1	6	5	4	7	4	7	1	2	4	4	4
<i>Cinnamomum</i> spp.	Cinnamom wood	AM	1,3	2-3	2	3	3	-	4	1	2	4	4	4
<i>Cinnamomum</i> spp.	Cinnamom wood	AM	1	4	3-6	3	2	1	4-5	2	1	2-4	2-4	3
<i>Cleistanthus</i> spp.	Olitica amarela	AM	1	5	3	3	6	3	3	1	1	2-3	2-3	3
<i>Cleistanthus</i> spp.	Olitica amarela	AM	2,3	6	5-6	5	4-7	3	7	3	3	3	3	3
<i>Copaifera</i> spp.	Copaita	AM	3	3-4	3-7	3	2-7	3	6	3	4	4	4	3
<i>Cordia</i> spp.	West African cordia	AF	1,2,4	2	2	2	1	1	2	1	2	3	3	3
<i>Cordia</i> spp. (Alliodora group)	Frejo	AM	3	3-4	3-4	3-4	2-4	2-3	3	1	2	2	2	3
<i>Cordia</i> spp. (Gerascanthus group)	Canalete	AM	3	4-6	5-6	3	3	5	3	1	3	3	3	3
<i>Cordia africana</i>	Rocoya	AS	3	5	4	5	2	1	2	2	3	3	3	3
<i>Cordia</i> sp.	Cow tree	AM	1,3	4-6	5-7	5	4-5	5	5	2	5	5	5	4
<i>Couma macrocarpa</i>	Cow tree	AM	1	3	3	3	4-5	4	5	2	2	1-2	1-2	3
<i>Couratari</i> spp.	Mahot	AM	1,3	3	4-6	3-4	4-5	2	4	2	2	2	2	2
<i>Cratogeomys arborescens</i>	Geronggang	AS	3	2-3	1	2	4-5	2	3	1	3	3	3	3
<i>Cratogeomys arborescens</i>	Musine	AF	1,2	4	4	4	4	-	5-7	3	3	3	3	3
<i>Croton megalocarpus</i>	Rose-maple	AS	3	3-6	4	3-6	3-7	2-3	6-7	3	3	3	3	3
<i>Cryptocarya</i> spp.	Mexican cypress	AM	1,3	4-7	3-4	2	2	1	2	1	2	2	2	2
<i>Cupressus lusitanica</i> ?	Prunella	AM	1	3	3	3	2	1	2	1	2	2	2	2
<i>Cycas</i> spp.	Okan	AF	1,3	6-7	6-7	5-6	7	6	7	1	2	2	2	2
<i>Cyclocladus gabunensis</i>	Okan	AF	1,3	6-7	6-7	5-6	7	6	7	1	2	2	2	2
<i>Cynodendron</i> spp.	Camitto	AM	1,2,3	5-6	6-7	7	7	2	7	2	2	2	2	2
<i>Cynometra alexandri</i>	Muhimbi	AF	3	6	7	6	7	2	7	2	2	2	2	2
<i>Cynometra</i> spp.	Kekatang	AS	1,3	6	6-7	5-6	6	2	7	2	2	2	2	2
<i>Dacrydium</i> spp.	Rimu	AM	3	2-3	2-3	2	2	-	2	-	2	2	2	2
<i>Dacryodes excelisa</i>	Admirer	AM	3	3	3	3	3	-	3	-	3	3	3	3
<i>Dactyloctenium aegyptium</i>	Admirer	AF	3	4-5	5-6	4-6	4-6	1-6	3	-	4	4	4	4
<i>Dactyloctenium stenostachys</i>	Johong	AF	3	2-4	2-4	2-4	1-4	1	3	-	4	4	4	4
<i>Dalbergia latifolia</i>	Indian rosewood	AS	4	5	5	5	6	1	7	1	1	1	1	1
<i>Dalbergia melanoxylon</i>	African blackwood	AF	4	6	6	6	6	-	7	-	7	7	7	7
<i>Dalbergia nigra</i>	Brazilian rosewood	AM	4	4-5	4-5	4-5	4-5	-	7	-	7	7	7	7
<i>Dalbergia retusa</i>	Cocobolo	AM	4	6	6	6	6	-	7	-	7	7	7	7
<i>Dalbergia stevensonii</i>	Onondras rosewood	AM	4	5-6	5-6	5-6	5-6	-	7	-	7	7	7	7
<i>Dendropanax arboreus</i>	Angelic tree	AF	3	3	2-3	2	2	1	2	2	2	2	2	2
<i>Dialium dinklagei</i>	Youtum	AM	3,4	5-6	4-7	4-6	6-7	2-7	7	-	7	7	7	7
<i>Dialium guianense</i>	Youtum	AM	3,4	5-6	4-7	4-6	6-7	2-7	7	-	7	7	7	7
<i>Dialium</i> spp.	Keranjil	AS	3,4	6	7	6-7	7	7	7	-	7	7	7	7

Scientific	Commercial	Geographic region	Color	Density	Mechanical properties				Other properties			
					Bending strength	Stiffness	Crushing strength	Toughness	Hardness	Move-ment	Shrinkage	Durability (heartwood)
<i>Dielythera</i> spp.	Cuagare	AM	3	2	2-3	3-4	1	1	1	1	5	2
<i>Dicorynia guianensis</i>	Basralocus	AM	4	4-5	6	4	5	3	4	4	1,2	4
<i>Diplospora</i>	Mahoe	AM	1	4	4	2	4	1	4	4	1	4
<i>Diploparax marotiani</i>	Mahoe	AM	3	2-3	3-4	4-5	3	2	4	4	5	3
<i>Dillenia</i> spp.	Simpoh	AM	3	3-5	4-5	2-5	2	2	2	4	4	2-3
<i>Diospyros</i> spp.	African ebony	AF	4	6	7	5-7	4	4	2	5	4	4
<i>Diospyros</i> spp.	East Indian ebony	AF	4	4-5	3-6	2-6	5	4	1	1	1	3
<i>Dipterocarpus purpurea</i>	Sucupira	AM	1	7	7	6-7	3	2-3	3	3	1-3	3
<i>Dipterocarpus</i> spp.	Keruing	AM	2,3	5	5-7	4-5	3	3	3	3	3	3
<i>Dioscorea</i> spp.	Alu	AM	1	6	7	5-7	3	3	3	3	3	3
<i>Distemonanthus benthamianus</i>	Avate	AF	3	3	5-6	3	4	1	1	3	3	3
<i>Distemonanthus</i> spp.	Pádao	AS	1,3	3-4	5-6	3-4	3	3	3	3	3	3
<i>Dryobalanops</i> spp.	Kapur	AS	3	4	5	4-6	5-6	2	2	5	3	4
<i>Dryobalanops</i> spp.	Magas	AS	1,3	2	1-2	1-2	1	1	1	3	3	4
<i>Durio</i> spp.	Durban	AS	3	3-4	2-3	2-3	1-2	1	1	3	3	1
<i>Elythera costulata</i>	Elitong	AF	1	2	2	2	1	1	2	3	4	1
<i>Elythera</i> spp.	Elitonga	AF	1	2	2	2	1	1	2	3	4	1
<i>Endiandra palmerstonii</i>	Orientalwood	AS	1,2,3	2	2	1	1	1	1	2	3	1
<i>Endospermum</i> spp.	Gubas	AS	2	2	-	-	-	-	2	3	4	1
<i>Entandrophragma angolense</i>	Gedunohor	AF	3	2-3	3	3-4	3-4	2	3	3	5	3
<i>Entandrophragma candollei</i>	Kosipo	AF	1,3	4	3-4	4	4-5	2	2	3	3	4
<i>Entandrophragma cylindricum</i>	Sapele	AF	3	5	5	4	5	3	3	5	3	3
<i>Entandrophragma utile</i>	Gubas	AM	3	4	4	4-5	2	2	2	3	3	4
<i>Entandrophragma</i> spp.	Illeperacaste	AM	1,3	2	1	1	1	1	1	2	2	4
<i>Enterobium scrobilargkii</i>	Timbauba	AM	1	6-7	6-7	7	7	5	2	2	1	4
<i>Eperua</i> spp.	Wallaba	AM	3	5	7	7	7	4	4	4	4	4
<i>Erythroxylum ivorense</i>	Missanda	AF	3	5	4-7	4-7	4	3	1	3	3	3
<i>Erythroxylum nanii</i>	Landa	AF	3	3	4	3-6	4	4	4	4	4	4
<i>Escwellera</i> spp.	Manbarklak	AM	1,3	3	4-7	3-7	3-7	4	4	4	4	4
<i>Eucalyptus deglupta</i>	Kepuhia	AS	3	2-4	6	6	7	4	4	5	5	4
<i>Eucalyptus globulus</i>	Bluegum	AS	3	4	6	6	7	4	4	5	5	4
<i>Eucalyptus marginata</i>	Bluegum	AS	3	5-6	5-7	5-6	6-7	4-5	2	3	3	3
<i>Eucalyptus</i> spp.	Jarrah	AS	1	5	5	5	5	2-3	2	3	3	4
<i>Eucryphia coriifolia</i>	Ulmo	AM	3	3	3	3	3	2-3	2	3	3	1
<i>Eugenia</i> spp.	Kelat	AS	1,3	4-5	4-5	4-5	4-5	3	3	3	3	1
<i>Eusideroxylon zwageri</i>	Belian	AS	2,3,4	5	5	6	6	4	4	4	4	4
<i>Eusideroxylon</i> spp.	Belian	AS	3,4	6	6	6	6	4	4	4	4	4
<i>Fagraea macrophylla</i>	East African saltwood	AF	1,4	4	5-7	4	5-7	1	1	1	1	3
<i>Fagraea angolensis</i>	Mafu	AF	2,4	4-6	5-7	4	5-7	1	1	1	1	3
<i>Fagraea</i> spp.	Tembusu	AS	1	5-6	6-7	7	6-7	4	2	2	2	4
<i>Fitzroya cupressoides</i> 2	Alerce	AM	3	2	2	2	2	1	1	1	1	1
<i>Findleria</i> spp.	Queensland-maple	AS	1	3	3	3	3	1	1	1	1	1
<i>Gambeya africana</i>	Konqui	AS	3	3	3	3-4	3	3	3	3	3	3
<i>Gambeya</i> spp.	Lequena	AS	3	6	6	6	6-7	4	4	4	4	4
<i>Gentia americana</i>	Lequena	AM	3	5-6	4-5	4-5	3	3	3	3	3	3
<i>Guia</i> spp.	Guia	AM	3	4	4	3-4	3-4	3	3	3	3	3
<i>Gmelina arborea</i>	Rengas	AS	3	4	3-5	3-4	3-4	3	3	3	3	3
<i>Gonioma kamassi</i>	Gmelina	AS	1,3	2	2	1-2	1	1	1	1	1	1
<i>Gonystylis</i> spp.	Kamasi	AS	1	5	7	5	7	3	3	3	3	3
<i>Gossweilera</i> spp.	Ramin	AS	1	4	6	4	5-7	4	4	4	4	4
<i>Gossweilera</i> spp.	Waga	AM	1,3	2-3	1-2	1-3	1-3	1	1	1	1	1
<i>Gossweilera</i> spp.	Indian boxwood	AM	3	5	5	5	5-7	2	2	2	2	2
<i>Gossweilera</i> spp.	Indian boxwood	AM	3	5	5	5	5-7	2	2	2	2	2
<i>Grevillea robusta</i>	Silky-oak	AM	1	2-4	2-4	4-5	2	2	3	3	3	3
<i>Guarea cecrata</i>	Lignumvitae	AM	4	6	7	7	6	3	3	3	3	3
<i>Guarea cecrata</i>	Guarea	AM	3	3	3	3	3	3	3	3	3	3
<i>Guarea</i> spp.	Cramantee	AM	3	4-5	4-5	3	4-5	3	3	3	3	3
<i>Gubouria arnoldiana</i>	Ititenye	AF	1,3	3-4	3-5	3-4	3-4	3	3	3	3	3
<i>Gubouria</i> spp.	Ititenye	AF	1,3	4	5-7	5-7	5-7	3	3	3	3	3
<i>Gubouria</i> spp.	Bubinga	AF	1,2	5-6	6-7	6-7	6-7	5	5	5	5	5
<i>Helicostylis tomentosa</i>	Leche peira	AM	2	6-7	6-7	6-7	6-7	5	5	5	5	5
<i>Hefferia</i> spp.	Mengkulang	AM	3	5	4	5	5	4	4	4	4	4
<i>Hevea brasiliensis</i>	Para rubber tree	AM	3	-	-	-	-	-	-	-	-	-
<i>Hibiscus elatus</i>	Blue mahoe	AM	3	7	7	6	7	7	7	7	7	7
<i>Hibiscus</i> spp.	Arakan homallium	AM	4	5-6	6	5-6	5-6	2	2	2	2	2
<i>Hibiscus</i> spp.	Burma lancewood	AM	1	5	5	5	5-6	1	1	1	1	1
<i>Homalium</i> spp.	Thingam	AS	1,3	5	5	5	5	5	5	5	5	5
<i>Hopea</i> spp.	Burma lancewood	AM	1	4	5	4-5	4-5	1	1	1	1	1
<i>Humiria balsamifera</i>	Tauronito	AM	1,3	6	6	6	6	5	5	5	5	5
<i>Hura crepitans</i>	Hura	AM	1	2	2	1-2	1	1	1	1	1	1

Scientific	Name	Geographic region	Color	Density	Mechanical properties			Other properties						
					Bending strength	Stiffness	Crushing strength	Toughness	Hardness	Movement	Shrinkage	Durability (heartwood)	Treatability (heartwood)	
<i>Hyeronima alchorisoides</i>	Suradan	AM	3	4.5	5.9	5	5.9	3	9	-	-	4	1-3	2
<i>Hymenoclea courbari</i>	Prunang	AM	3	3.6	4.6	4.7	6.7	4	6	-	-	3	4	2
<i>Hymenocleum excelsum</i>	Merbau	AM	3	5	5.7	5.6	5.7	3.4	6-6	1	-	5	1-2	2
<i>Inisia bijuga</i>	Oba	AF	1	5	7	6	5.7	4	-	1	-	1	2	4
<i>Iringia gabonensis</i>	Krikawa	AM	1,2,3	2.4	4.5	4.6	3.6	2	3	2	-	4	3	-
<i>Iryantheira</i> spp.	Mbarika	AF	3	4.5	5	4.6	5	1	5	2	-	4	3	1
<i>Jacaranda copala</i>	Copala	AM	4	2	2.3	2.4	2	-	1	1	-	3	5	1
<i>Jacaranda glabiflora</i>	Moga	AM	3	5.6	7	7	7	-	7	2	-	2	4	1
<i>Jubera sp.</i>	Moga	AF	3	3	3	2	2	-	2	2	-	2	2	4
<i>Juniperus procera</i> ?	African pencil cedar	AF	3	4	4	3	4	2-3	2	1	-	2	3	4
<i>Khaya grandifoliola</i>	African mahogany	AF	3	3	3	2.3	3	2	3	1	-	2	3	4
<i>Khaya ivorensis</i>	African mahogany	AF	2	3	7	7	7	6	3	1	-	5	1	3
<i>Klaineodora gabonensis</i>	Evueus	AF	2	3	7	6	7	6	6	1	-	4	1	4
<i>Koornpassia malaccensis</i>	Empas	AS	3	5	7	6	7	3	8	1	-	4	1	4
<i>Koornpassia primatea</i>	Pengo	AS	3	5	7	6	7	3	8	1	-	4	1	4
<i>Legstroemia</i> spp.	Pungu	AS	3	4	7	6	7	3	8	1	-	4	1	4
<i>Lecythis</i> spp.	Sapucala	AM	3	4.6	4.7	4.7	4.5	3	6-7	7	7	3	3.4	4
<i>Licania</i> spp.	Manishballi	AM	1,2	5.6	7	7	7	4	7	7	7	3	1	4
<i>Licaria</i> spp.	Kaneehart	AM	1,3	5.6	7	5.7	7	4	7	7	7	3	1	4
<i>Litsea</i> spp.	Medang	AS	4	3	2.4	3.4	2.4	2	2	2	-	2	1	3
<i>Lonicarparpus</i> spp.	Black cabbage-bark	AF	1,3	4.6	6.7	6.7	4.7	7	7	2	-	4	2	3
<i>Lophopetalum</i> spp.	Perupok	AF	1	6	2	2	2	2	2	1	-	2	5	3
<i>Lova trichiloides</i>	African-walnut	AF	3	3	2.3	3	2	3	2	3	-	2	3	4
<i>Luehea</i> spp.	Estribeiro	AM	1,3	3	3.4	4	3	4	4	4	-	3	5	1
<i>Lysiloma</i> spp.	Sabucu	AM	1,4	4	4	4	4	4	4	4	-	1	1	-
<i>Machlanium</i> spp.	Cavuna	AM	4	5	5	5	4	4	4	4	-	1	1	-
<i>Macnillus</i> spp.	Mecurus	AM	3	3	5	2	4	5	2	2	-	1	1	-
<i>Machonia chinii</i>	Machonia	AF	1,2	3	2.3	2.3	2.3	-	2	1	-	2	1	1
<i>Magnolia</i> spp.	Magnolia	AF	4	3.4	3.4	3.4	4	2	2	3	-	2	1	3
<i>Mammea africana</i>	Oboto	AF	3	4.5	6.7	6.7	4	1.4	2	3	-	5	1.2	3
<i>Mangifera</i> spp.	Mango	AS	1,2,3	3.4	4.5	5	3.4	4	4	3	-	2	2	2
<i>Mansonia bidentata</i>	Bulletwood	AM	3	6	7	7	7	5	7	2	-	3	1	4
<i>Mansonia birtissima</i>	Mansonia	AF	1,4	3.4	4.5	3	3.5	2.5	4	4	-	3	1	4
<i>Marsippospora</i> spp.	Black-leaved tea-tree	AS	3	4.5	6	3	7	4	4	1	-	2	1	-
<i>Melia azadirach</i>	Persian lilac	AS	3	4.5	6	3	7	4	4	1	-	2	1	-
<i>Mesua ferrea</i>	Gangaw	AS	3	5	7	2	4	5	1	-	-	4	2	-
<i>Metrosideros collina</i>	Ohia	AS	3	5	7	6	7	4	7	3	-	4	4	3
<i>Michelia</i> spp.	Champaca	AS	3	5	6	5	5	4	7	3	-	4	4	3
<i>Microberlinia brazzavilensis</i>	Zebrano	AF	1	3	2.3	2.3	2.3	4	5	1	-	2	3	-
<i>Mitrasia</i> spp.	Mitrasia	AF	1,4	4.5	9.7	7	6.6	2	5	2	-	3	2	4
<i>Millettia</i> spp.	Panga panga	AF	2,4	5	5.7	4.6	6.7	4.7	2	1	-	4	2	-
<i>Mitragyna ciliata</i>	Abura	AF	1,3	5	3	2.3	2.3	1	2	1	-	2	1	4
<i>Monopetalanthus heilzi</i>	Adoung	AF	3	4	4	2	3	3	2	3	-	3	3	3
<i>Mora excelsa</i>	More	AM	3	5.6	7	6	7	4	7	1	-	3	1.2	3
<i>Monus mezozygia</i>	Difou	AF	1	5	5	5	7	3	1	1	-	2	4	4
<i>Mussaiga cecropioides</i>	African corkwood	AF	1	3.2	1.2	1.2	1	3	1	1	-	2	4	3
<i>Mussaiga guianensis</i>	Udah	AS	1,3	4	4	3	3	3	3	1	-	2	5	3
<i>Miraxylon balsanum</i>	Balsano	AM	3	5.6	6.7	5	6.7	5	3	1	-	2	1	4
<i>Nauclaea diderrichie</i>	Opepe	AM	4	3.4	4.5	3	3.5	2	5	1	-	2	1	4
<i>Nectandra</i> spp.	Dania	AM	3	4.5	6	6	6	5	3	2	-	2	2.4	4
<i>Nesogordonia papaverifera</i>	Rauli Coigue	AM	3	3	3.5	3.4	2.5	2.3	3	1	-	2	2.4	2
<i>Nothofagus</i> spp.	Bambusa	AM	3	3.4	3.5	3.4	3.5	-	3	1	-	2	2.4	2
<i>Nothofagus</i> spp.	asmanthian-myrtle	AM	3	1	1	1	1	-	1	2	-	2	2	3
<i>Ocotea rodiaei</i>	Demerara greenheart	AM	1,3	6	7	7	7	-	7	2	-	3	3	4
<i>Ocotea rubra</i>	East African camphorwood	AM	3	4	3.4	4	2.3	1.2	1.2	1	-	2	1.2	4
<i>Ocotea usambarensis</i>	East African camphorwood	AF	1,3	2	2	3	3.4	1	3	1	-	2	1	4
<i>Ocotea usambarana</i>	Binuang	AF	1	2	1.2	1.2	1.2	1	1.2	1	-	2	1	4
<i>Oryzidea</i> spp.	Chnzang	AF	1	2	1	1	1	1	1	1	-	1	1	4
<i>Olea nicotiflora</i>	East African olive	AF	1	2	1	1	1	1	1	1	-	1	1	4
<i>Olea sp.</i>	East African olive	AF	1	2	1	1	1	1	1	1	-	1	1	4
<i>Ormosia</i> spp.	Barapara	AM	1,3	3.5	4.7	3.5	3.6	3	3.5	-	-	3	3.4	2
<i>Oxandra lanceolata</i>	West Indian lancewood	AM	3	6	7	6	7	1.2	7	1	-	2	4	1
<i>Oxytigma oxyphyllum</i>	Tchitola	AF	3	4	4.5	3	4	2	4	1	-	2	2.4	1
<i>Palaquium</i> spp.	Nyatoh	AS	1,4	3	3.4	3.4	1.4	3	3.4	1	-	3	3.4	4
<i>Parashorea</i> spp.	White seraya	AS	1,3	3	3.4	3.4	3.4	3	2.3	1	-	3	3.4	4

Scientific	Commercial	Geographic region	Color	Density	Mechanical properties			Other properties					
					Bending strength	Stiffness	Crushing strength	Toughness	Hardness	Movement	Shrinkage	Durability (heartwood)	Treatability
<i>Paratecoma peroba</i>	White peroba	AM	3, 4	4	5	3	3.5	5	5	2	3	1	3
<i>Pearlari excelsa</i>	Soupe	AF	3	4.5	6.7	4.5	6.7	6	6	2	3	3.5	3
<i>Peltandra</i>	Purpleheart	AM	1, 3	5.6	6.7	5.7	6.7	6.7	6.7	2	3	4	4
<i>Pentacme spp.</i>	Thika	AS	1, 3	4	4	3.4	3.4	3.4	3.4	2	2	1	2
<i>Pentacme spp.</i>	White lauan	AS	1, 3	3.5	3.6	3	3.6	2	2	2	2	2.4	2
<i>Pentacme spp.</i>	Afrosmosia	AF	1, 2	4	3.6	3.4	3.6	2	2	2	2	2	4
<i>Pentacme spp.</i>	Lingue	AM	3	3.4	4	3	3	3	3	2	3	4	3
<i>Pentacme spp.</i>	Shubla	AM	2, 4	5	4	3	3	3	3	1	2	2	-
<i>Pentacme spp.</i>	Shimings-boxwood	AM	1, 3	5	4	3	3	4	4	1	2	2	-
<i>Pinus caribaea</i>	Caribbean pine	AM	1, 3	2.5	2.5	3.4	4.5	5	4	5	3	3	2
<i>Pinus insularis</i>	Benguet pine	AS	1, 3	3.5	3.5	3.4	3.4	2	2	5	3	3	2
<i>Pinus merkusii</i>	Merkus pine	AS	1	4	6	5	4	2	2	3	4	3	1
<i>Pinus patula</i>	Ocoté pine	AM	3	4	5	5	4	2	2	3	3	3	3
<i>Pinus patula</i>	Patula pine	AM	1	3	4	2.4	2.4	2	2	3	3	3	3
<i>Platanus africana</i>	Carbonero	AM	1, 3	4	5.7	4.5	4.5	4	4	2	2	2	2
<i>Platanus africana</i>	Carbonero	AF	1, 3	4	5	4	4.5	4	4	2	2	2	2
<i>Platanus guianensis</i>	Letterwood	AM	3, 4	6	3	2	2	1	1	1	1	1	1
<i>Platanus saman</i>	Saman	AM	2, 4	3	2	2	2	1	1	1	1	1	1
<i>Platanus saman</i>	Pulat paya	AS	3, 4	4	4.5	3.4	4	2	2	5	1	1	1
<i>Platanus saman</i>	Trebol	AM	3, 4	5.6	5.7	6.7	5.7	3	3	6	1	1	4
<i>Plocecarpus spp.</i>	Podocarp	AM	1	2.4	2.4	2.4	1.3	1	1	1	1	2.5	4
<i>Plocecarpus spp.</i>	Poiaia	AF	1, 3	2.3	2.3	2.4	2.4	1	1	2	1	2.5	1
<i>Plocecarpus spp.</i>	Poiaia	AF	1	3	3	2	2	1	1	1	1	2	1
<i>Poga oleosa</i>	Ovaga	AF	3	2	2	2	2	1	1	1	1	5	3
<i>Pogonochloa</i>	Kassai	AS	3	4	4.5	3.4	4.5	2	2	4	4	5	2
<i>Poulsenia armata</i>	Mastate	AM	1	2	1	1	1	-	-	4	4	5	2
<i>Pradosia spp.</i>	Chupon	AM	1, 3	5	6	5	4	4	4	2	2	5	2
<i>Prinosia</i>	Calivo	AM	1, 2	2.3	2	2	2	1	1	2	2	4	3
<i>Prinosia</i>	Calivo	AM	1, 2	2.3	2.5	3.4	3.5	1	1	3	3	1	3
<i>Pseudotsuga</i>	Guachapele	AM	1, 3	4	3	2	3	2	2	3	3	1	3
<i>Pseudotsuga quachapele</i>	Sepefit	AS	4	4	4.6	4	3.5	4	4	2	2	1	4
<i>Pseudotsuga palustris</i>	Muningga	AS	1, 2, 3	3.4	4	2	4	-	-	1	1	2	4
<i>Pterocarpus angolensis</i>	Andaman padauk	AS	3	4	5	4	6	2	2	2	2	2	3
<i>Pterocarpus dalbergioides</i>	Narra	AS	1, 3	3.4	4	3	4.5	2	2	5	1	1	2
<i>Pterocarpus indicus</i>	Burma padauk	AF	3	5	4	3	4.5	2	2	4	1	1	4
<i>Pterocarpus macrocarpus</i>	Andaman padauk	AF	3	4	4.6	4	4.5	2	2	2	2	2	3
<i>Pterocarpus nyanus</i>	Sanga	AM	3	2.4	2.5	2.4	2.4	1	1	2	2	2	4
<i>Pterocarpus nyanus</i>	Sanga	AM	1	2.4	2.4	2.4	2.4	4	4	2	2	2	4
<i>Pterogyne nitens</i>	Pterogyne nitens	AM	3	5	3	3	3	5	5	4	4	3	1
<i>Pterogyne nitens</i>	Pterogyne nitens	AF	1	3	3.5	3.5	3.5	3	3	2	2	2	2
<i>Pycnanthus angolensis</i>	Ilomba	AF	1, 3	3	3	2	2	2	2	3	3	4	1
<i>Pygeum africanum</i>	Mueri	AF	3	3	5	3	5	6	6	4	4	5	3
<i>Qualea spp.</i>	Randouquera	AM	3	3.4	5.7	5.6	4.7	3	3	3	3	3	3
<i>Qualea spp.</i>	Randouquera	AM	1, 3	4.6	6	6	5	3	3	3	3	3	3
<i>Rhizophora</i>	Pacun	AM	1, 3	4	6	6	5	6	6	4	4	5	5
<i>Rhizophora mangle</i>	Mangle Colorado	AM	3	6	7	6	5	7	7	4	4	2	4
<i>Riconodendron heudelotii</i>	Erinado	AF	1	1	1	1	1	1	1	2	2	5	1
<i>Santalum album</i>	Santalwood	AS	1, 2, 3	5	5	3	2.3	1	1	3	3	1	1
<i>Sapium spp.</i>	Lechero	AM	3	3	3	3	4	1	1	5	5	1	1
<i>Schima spp.</i>	Redwood	AM	3	6	4	4	4	4	4	4	4	4	3
<i>Sclerobolium spp.</i>	Diedo	AM	2, 3	4	3.7	3.4	3.4	3	3	3	3	2	3
<i>Scorodocarpus borneensis</i>	Kulim	AS	3	5	5	4	2.3	2	2	4	4	2	3
<i>Scotellia coriacea</i>	Odoko	AF	1	4	5	4	5	3	3	3	3	3	3
<i>Scyphocephallium ochocoa</i>	Sorro	AF	3	3	2.4	2.4	1.3	1	1	5	5	1	2
<i>Shorea spp.</i>	Balu group	AS	3	3	6.7	5	6	5	5	2	2	4	4
<i>Shorea spp.</i>	Dark red meranti group	AS	3	3	3.4	3.4	2.3	2	2	5	5	4	4
<i>Shorea spp.</i>	White meranti group	AS	1, 2, 3	2.3	3.4	3.4	2.3	2	2	2	2	3	3
<i>Shorea spp.</i>	White meranti group	AS	1	3	4	3	3	2	2	3	3	2	4
<i>Shorea spp.</i>	Shorea spp.	AS	1	3	4	3	3	2	2	4	4	4	4
<i>Sickingia spp.</i>	Aranba	AM	3	4	4	3	3	2	2	3	3	4	4
<i>Simarouba amara</i>	Simarouba	AM	2	3	4	3	3	2	2	4	4	4	4
<i>Sonneratia spp.</i>	Perepat	AM	1, 2	3	2	2	3	1	1	2	2	3	3
<i>Sonneratia spp.</i>	Perepat	AS	1	3	3	3	1	1	1	3	3	3	3
<i>Staudtia stipitata</i>	Staudtia stipitata	AF	1, 3	2	2	2	1.3	1	1	1	1	1	1
<i>Sterculia apetala</i>	Chicha	AM	1, 3	5	7	5	7	2	2	5	5	1	4
<i>Sterculia oblonga</i>	Yellow sterculia	AF	1	1	1	1	1	1	1	2	2	1	1
<i>Sterculia pruriens</i>	Sterculia	AM	1	3	5	4	6	4	4	4	4	5	4
<i>Sterculia rhamnifolia</i>	Brown sterculia	AF	3	3	7	3	3.5	2	2	2	2	4	4

Scientific	Name	Commercial	Geographic region	Color	Density	Mechanical properties				Other properties				
						Bending strength	Stiffness	Crushing strength	Toughness	Hardness	Movement	Shrinkage	Durability (heartwood)	Treatability
<i>Strombosia glaucescens</i> var. <i>lucida</i>		Alma	AF	1, 3	6	7	5	7	-	-	-	1	1	4
<i>Swartzia tsiloides</i>		Dina	AF	1, 2, 3	6	7	6, 9	7	7	7	-	5	2	4
<i>Syzygium</i> spp.		Hogara	AM	2, 3, 4	6	7	6, 9	7	7	7	-	5	2	4
<i>Syzygia macrophylla</i>		Honitugas mahogany	AM	3, 5	3	3	2, 3	3	3, 4	3, 4	1	2	4	4
<i>Swintonia</i> spp.		Mepauh	AS	1, 3	3-5	3	4, 5	2, 4	2, 3	2, 3	1	2	4	1-2
<i>Symphonia globulifera</i>		Manni	AS	1, 4	4	5-6	5	5, 6	4	4, 5	-	5	5	3
<i>Syncarpia glomulifera</i>		Turpentine	AM, AF	3	5	7	5	7	2, 4	4, 5	-	4	2	-
<i>Tabebuia</i> spp. (Lapacho group)		Ipe	AM	4	6	7	7	7	7	7	1	4	4	-
<i>Tabebuia</i> spp. (Roble group)		Ipe noble	AM	3, 4	3, 4	7	7	7	7	7	1	4	4	-
<i>Tabebuia</i> spp. (White-cedar group)		White cedar	AM	1, 3	3, 4	5, 6	4, 5	4, 5	2	3	2	3	3	3
<i>Tarrietia utilis</i>		Niangon	AF	3	3, 4	4, 5	3, 4	4, 5	3	3, 4	2	2	2	4
<i>Tectona grandis</i>		Teak	AS	1, 2	4, 5	6-7	5, 7	6, 7	3	5, 7	-	5	4	4
<i>Terminalia amazonia</i>		Nargusta	AM	1, 3	4, 5	4	4	3	3	4	-	3	3, 4	4
<i>Terminalia bialata</i>		White chuglam	AS	3	3, 4	3	3	3	2	3	-	3	2	2
<i>Terminalia catappa</i>		Indian almond wood	AS	1, 2	3	3	3	3	2	3	-	3	2	2
<i>Terminalia ivorensis</i>		Wigpo	AS	1, 2	3, 4	4	3	4	3	3	1	2	4	4
<i>Terminalia litoralis</i>		White bombay	AF	1, 4	3, 4	3, 4	2, 3	3	1	3	1	2	4	4
<i>Terminalia superba</i>		Afara	AF	1, 2, 4	5	4, 5	3, 4	4, 5	1	7	-	3	3	3
<i>Terminalia tomentosa</i> complex		Indian laurel	AF	3, 4	4	4, 5	3, 4	4, 6	1	-	-	2	2	3
<i>Testulea gabonensis</i>		Izombé	AF	3	4	5	5	6	1	-	-	3	2	2
<i>Tetraberberis tubmaniana</i>		Ekop	AF	3, 4	4	5	5	6	4	6-7	-	4	4	4
<i>Tetrastis</i> spp.		Sali	AM	4	4, 6	5-6	4, 5	5-6	4	-	-	3	4	4
<i>Tetrameles nudiflora</i>		Hitbok	AS	2	2	-	-	-	-	-	-	5	4	3
<i>Tetrasia</i> spp.		Pitak	AS	1, 3	4	4	4	4	4	4	1	3, 4	4	3
<i>Tetrasia</i> spp.		Makoré	AF	3	4	4, 5	3	4, 6	1	4	1	4	4	4
<i>Tetrasia</i> spp.		Long John	AM	1, 3	3, 4	4, 6	4	4	2, 3	3-6	1	4	4	3
<i>Tetrasia</i> spp.		Obeche	AF	1	2	2	1-2	1	1	1	1	5	2	3
<i>Triplochiton scleroxylon</i>		Brush box	AS	3	5, 6	6, 7	5, 6	6, 7	4, 7	6, 7	2	2	4	4
<i>Tristania</i> spp.		Ramon	AM	1, 2	3	3	2	2	1	2	1	2	4	4
<i>Tropis</i> spp.		Wood gum	AF	1	3, 4	5, 6	3, 4	5, 5	2, 3	2	1	3	4	3
<i>Uapaca</i> spp.		Uapaca	AF	3	4, 5	5, 6	3, 4	4	2, 4	2	1	3	4	3
<i>Uapaca</i> spp.		Uapaca	AF	2	4, 5	5, 6	3, 4	4	2, 4	2	1	3	4	3
<i>Uapaca</i> spp.		Uapaca	AS	2	6	-	-	-	-	-	-	1	2	3
<i>Vatairea</i> spp.		Bitter angelim	AM	4	4	3-6	3-5	2, 3	-	3-5	-	2	3	4
<i>Virella</i> spp.		Banak	AM	1, 3	2, 4	2-3	2, 4	1, 2	1	1-2	1	3	4	4
<i>Virex</i> spp.		Virex	AF	1	2, 3	1	1	1-2	1	1-2	1	5	5	1
<i>Virex</i> spp.		Fiddlewood	AM	1, 3	2, 3	4	3, 5	4, 7	2	4	1	1-3	4	4
<i>Virex</i> spp.		Virex	AM	1, 3, 4	4, 5	4, 5	3, 5	4, 7	2	4	1	3	4	4
<i>Vochysia</i> spp.		Yemeré	AM	2, 3	2, 3	2, 3	2, 3	2, 3	1	1, 2	1	4	4	1
<i>Vouacapa americana</i>		Wacapou	AM	1, 3, 4	2, 4	7	5	7	4	1, 2	1	3	3	4
<i>Wallacodendron celebicum</i>		Banuyo	AM	2, 3	5, 6	7	5	7	4	1, 2	1	4	4	1
<i>Widdringtonia whytei</i> ²		Mianje cedar	AF	1	4	4	4	4	4	6	-	3	3	4
<i>Xylocarpus</i>		Pinkkado	AF	1	3	5-7	4, 5	5-7	4	7	-	1	1	1
<i>Zanthoxylum flavum</i>		West Indian satinwood	AM	1	5	-	-	-	4	-	-	2	3	4

Name	Construction					Uses																	
	Heavy		Light		Main Use	Crossies	Joinery/ millwork	Flooring	Shakes/ shingles	Recon- stituted Products	Plywood	Decorative veneers	Furniture/ cabinet- work	Turnery	Carvings	Musical instru- ments	Tool handles	Vats/stacks	Coop- erage	Boxes/ crates	Specialty Items		
<i>Strombosia glaucescens</i> var. <i>lucida</i>																							
<i>Swartzia fistuloides</i>								X				X		X			X						
<i>Swartzia</i> spp.								X				X		X			X						
<i>Sweetiana macrophylla</i>								X				X		X			X						X
<i>Swintonia</i> spp.								X				X		X			X						
<i>Symplocos globulifera</i>								X				X		X			X						
<i>Symplocos</i> spp.								X				X		X			X						
<i>Tabebuia</i> spp. (Lapacho group)								X				X		X			X						X
<i>Tabebuia</i> spp. (Roble group)								X				X		X			X						X
<i>Tabebuia</i> spp. (White-cedar group)								X				X		X			X						X
<i>Tarrietia utilis</i>								X				X		X			X						
<i>Tectons grandis</i>								X				X		X			X						
<i>Tectons</i> spp.								X				X		X			X						
<i>Terminalia alata</i>								X				X		X			X						
<i>Terminalia catappa</i>								X				X		X			X						
<i>Terminalia ivorensis</i>								X				X		X			X						
<i>Terminalia procera</i>								X				X		X			X						
<i>Terminalia superba</i>								X				X		X			X						
<i>Terminalia tomentosa</i> complex								X				X		X			X						X
<i>Terminalia</i> spp.								X				X		X			X						
<i>Tetrapanax tuberosum</i>								X				X		X			X						
<i>Tetragastris</i> spp.								X				X		X			X						
<i>Tetrameles nudiflora</i>								X				X		X			X						
<i>Tetramerista glabra</i>								X				X		X			X						
<i>Tieghemella heckellii</i>								X				X		X			X						
<i>Tieghemella</i> spp.								X				X		X			X						
<i>Tristania</i> spp.								X				X		X			X						
<i>Trophis</i> spp.								X				X		X			X						
<i>Turraeanthus africanus</i>								X				X		X			X						
<i>Upaca</i> spp.								X				X		X			X						
<i>Upuna borneensis</i>								X				X		X			X						
<i>Upuna</i> spp.								X				X		X			X						
<i>Vatairea</i> spp.								X				X		X			X						
<i>Virex</i> spp.								X				X		X			X						
<i>Virex</i> spp. (Fiddlewood)								X				X		X			X						X
<i>Virex</i> spp. (Molave)								X				X		X			X						X
<i>Vochysia</i> spp.								X				X		X			X						
<i>Volucarpoua americana</i>								X				X		X			X						X
<i>Walacodendron celebicum</i>								X				X		X			X						X
<i>Walacodendron</i> spp.								X				X		X			X						X
<i>Xylocarpus</i> spp.								X				X		X			X						X
<i>Xylocarpus xylocarpa</i>								X				X		X			X						X
<i>Zanthoxylum flavum</i>								X				X		X			X						X

Appendix A.—Selected Forest Products Reference Material

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Appendix B.—Generic Synonyms

Older scientific name ¹	Newer scientific name	Region of origin ²
<i>Afrormosia elata</i>	<i>Pericopsis elata</i>	AF
<i>Brosimum guianensis</i>	<i>Piratinera guianensis</i>	AM
<i>Chrysophyllum africanum</i>	<i>Gambeya africana</i>	AF
<i>Cistanthera papaverifera</i>	<i>Nesogordonia papaverifera</i>	AF
<i>Coumarouna odorata</i>	<i>Dipteryx odorata</i>	AM
<i>Fagara flava</i>	<i>Zanthoxylum flavum</i>	AM
<i>Knema</i> spp	<i>Myristica</i> spp.....	AS
<i>Libidibia</i> spp	<i>Caesalpinia</i> spp	AM
<i>Payena</i> spp	<i>Palaquium</i> spp.....	AS
<i>Piptadenia</i> spp.....	<i>Anadenanthera</i> spp	AM
<i>Piptadenia africana</i>	<i>Piptadeniastram africanum</i>	AF
<i>Prunus africanum</i>	<i>Pygeum africanum</i>	AF
<i>Samanea saman</i>	<i>Pithecellobium saman</i>	AM
<i>Sarcocephalus diderrichii</i>	<i>Nauclea diderrichii</i>	AF
<i>Tabebuia donell-smithii</i>	<i>Cybistax donell-smithii</i>	AM
<i>Tarrietia</i> spp.....	<i>Heritiera</i> spp	AS

¹ Scientific names in the first column have been changed to those currently used in the second column.

² Tropical America (AM); Africa (AF); Southeast Asia and Oceania (AS).

Appendix C.–Generic Groupings

To locate genus ¹	See generic grouping	Region of origin ²
<i>Chrysophyllum</i>	<i>Cynodendron</i>	AM
<i>Knema</i>	<i>Myristica</i>	AS
<i>Melanorrhoea</i>	<i>Gluta</i>	AS
<i>Neesia</i>	<i>Durio</i>	AS
<i>Payena</i> spp	<i>Palaquium</i> spp	AS
<i>Sindora</i>	<i>Pseudosindora</i>	AS
<i>Vatica</i>	<i>Cotylelobium</i>	AS

¹ More than one genus marketed together.

² Tropical America (AM); Africa (AF); Southeast Asia and Oceania (AS).

Appendix D.—Derivation of Comparative Toughness Values in Table IV-1

Studies have been made to measure the effect of machine type, specimen size, and moisture content on toughness. Vilelal compared results using the Forest Products Laboratory (FPL) toughness testing machine and the Mohr and Federhaff pendulum impact machine (similar to the Amsler machine). Specimens were 1.6 by 1.6 by 24 centimeters long loaded over a 20centimeter span equivalent to the 5/8- by 5/8- by 10-inch specimen loaded over an 8-inch span. Twenty tropical hardwood species with a sampling of 10 trees per species were evaluated in the green condition and at a moisture content of 12 percent.

Average toughness (kg-m) for all species combined for each machine type tested green and dry was:

	Green	Dry
FPL machine	1.82	2.25
Amsler-type machine	1.88	1.67
FPL/Amsler	.97	1.35

Vilela did not compare the effect of specimen volume between supports.

Gerhards² made such tests using the FPL machine. Six North America species were tested in the green and dry condition. There was little effect of moisture content and all toughness values combined gave a ratio of:

$$\frac{2\text{-cm}}{5/8\text{-in.}} = 1.80$$

Based on the Vilela and Gerhards results, the following conversion factors were developed:

FPL 5/8-inch green x 1.25	=Fpk 5/8-inch dry
FPL 5/8-inch green x 1.80	=FPL 2-centimeter green
FPL 5/8-inch dry x 1.80	=FPL 2-centimeter dry
FPL 2-centimeter green x 1.00	=Amsler 2-centimeter green
FPL 2-centimeter dry ÷ 1.35	=Amsler 2-centimeter dry

¹ Vilela, J.E. 1977. Estudio comparativo de los ensayos del tenacidad realizados con dos equipos diferentes. Lab. Nac. Prod. For. Merida, Venezuela.

² Gerhards, C.C. 1968. Effects of type of testing equipment and specimen size on toughness of wood. U.S. Dep. Agric. For. Serv. Res. Pap. FPL 97. For. Prod. Lab., Madison, Wis.

Appendix E.—Kiln Schedules

Most modern dry kilns are designed to control temperature (dry bulb), relative humidity (wetbulb depression), and air circulation. Proper control of these variables throughout the drying process allows rapid removal of undesired moisture from wood and holds to an acceptable minimum defects such as checking and warp. Kiln schedules, based on available literature, are suggested for species and these “moisture content” schedules are coded to indicate desired dry-bulb temperatures, moisture content at step change, and wet-bulb depressions. For example, T6-D4 is suggested for 4/4 Honduras mahogany lumber. “T6” indicates the desired dry-bulb temperature settings, “D” the sample board moisture contents at which changes are made in the dry-bulb and wet-bulb settings, and “4” the wet-bulb depressions that accompany the dry-bulb temperatures. (See tables E-1 and E-2.) These settings are assembled to form the working kiln schedule.’

Example: T6-D4 Dry Kiln Schedule for Honduras Mahogany

Moisture content at start of step	Dry-bulb temperature	Wet-bulb depression	Wet-bulb temperature
Percent	°F		
Above 50	120	7	113
50	120	10	110
40	120	15	105
35	120	25	95
30	130	40	90
25	140	50	90
20	150	50	100
15 to final	180	50	130

Occasionally the letter “S” follows a kiln schedule code, e.g., T10-D4S. This refers to general wet-bulb depression schedules for the softwoods or conifers (table E-3) and is sometimes suggested as well for drying particular hardwoods.

¹ Rasmussen, E.F. 1961. Dry kiln operator’s manual. U.S. Dep. Agric., Agric. Handb. No. 188.

Table E-1.—General temperature schedules for hardwoods and softwoods

Temperature step number	Moisture content at start of step	Dry-bulb temperatures for temperature schedule number													
		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14
	Percent	°F													
1	Above 30	100	100	110	110	120	120	130	130	140	140	150	160	170	180
2	30	105	110	120	120	130	130	140	140	150	150	160	170	180	190
3	25	105	120	130	130	140	140	150	150	160	160	160	170	180	190
4	20	115	130	140	140	150	150	160	160	160	170	170	180	190	200
5	15	120	150	160	180	160	180	160	180	160	180	180	180	190	200

Table E-2.—General wet-bulb depression schedules for hardwoods

Wet-bulb depression step number	Moisture content at start of step for moisture content class						Wet-bulb depressions for wet-bulb depression schedule number							
	A	B	C	D	E	F	1	2	3	4	5	6	7	8
	Percent						°F							
1	Above 30	Above 35	Above 40	Above 50	Above 60	Above 70	3	4	5	7	10	15	20	25
2	30	35	40	50	60	70	4	5	7	10	14	20	30	35
3	25	30	35	40	50	60	6	8	11	15	20	30	40	50
4	20	25	30	35	40	50	10	14	19	25	35	50	50	50
5	15	20	25	30	35	40	25	30	35	40	50	50	50	50
6	10	15	20	25	30	35	50	50	50	50	50	50	50	50

Table E-3.—General wet-bulb depression schedules for softwoods

Wet-bulb depression step number	Moisture content at start of step for moisture content class						Wet-bulb depressions for wet-bulb depression schedule number							
	A	B	C	D	E	F	1	2	3	4	5	6	7	8
	Percent						°F							
1	Above 30	Above 35	Above 40	Above 50	Above 60	Above 70	3	4	5	7	10	15	20	25
2	30	35	40	50	60	70	4	5	7	10	14	20	25	30
3	25	30	35	40	50	60	6	8	11	15	20	25	30	35
4	20	25	30	35	40	50	10	14	15	20	25	30	35	35
5	(¹)	20	25	30	35	40	15	20	20	25	30	35	35	35
6	-	(¹)	20	25	30	35	20	25	25	30	35	35	35	35
7	-	-	(¹)	20	25	30	25	30	30	35	35	35	35	35
8	-	-	-	(¹)	20	25	30	35	35	35	35	35	35	35
9	-	-	-	-	(¹)	20	35	35	35	35	35	35	35	35
10	15	15	15	15	15	15	50	50	50	50	50	50	50	50

¹ Go directly to step 10

Index of Trade and Important Common Names

If only the trade name of a wood is known, this index can be used to locate the species descriptions which are listed alphabetically by scientific name in their geographical region of origin. Preference is given to English usage (e.g., mahogany rather than caoba, mogno, or acajou).

Trade name	Region of origin ¹	Scientific name	page
Abachi	AF	<i>Triplochiton scleroxylon</i>	284
Abate	AF	<i>Combretodendron africanum</i>	204
Abel	AF	<i>Canarium schweinfurthii</i>	196
Aboudikro	AF	<i>Entandrophragma cylindricum</i>	220
Abura	AF	<i>Mitragyna ciliata</i>	249
Acajou Blanc	AM	<i>Simarouba amara</i>	152
Acapu	AM	<i>Vouacapoua americana</i>	170
Aceituno	AM	<i>Vitex</i> spp.	168
Adjouaba	AF	<i>Dacryodes</i> spp.	210
Adoung	AF	<i>Monopetalanthus heitzii</i>	250
Afara	AF	<i>Terminalia superba</i>	280
Afara, Black	AF	<i>Terminalia ivorensis</i>	279
Afina	AF	<i>Strombosia glaucescens</i>	276
African Blackwood	AF	<i>Dalbergia melanoxylon</i>	211
African Canarium	AF	<i>Canarium schweinfurthii</i>	196
African Celtis	AF	<i>Celtis</i> spp.	201
African Corkwood	AF	<i>Musanga cecropioides</i>	252
African Crabwood	AF	<i>Carapa procera</i> and <i>C. grandiflora</i>	197
African Ebony	AF	<i>Diospyros</i> spp.	215
African Homalium	AF	<i>Homalium</i> spp.	233
African Mahogany	AF	<i>Khaya ivorensis</i> and <i>K. anthotheca</i>	239
African Mahogany	AF	<i>Khaya grandifoliola</i> and <i>K. senegalensis</i>	238
African Padauk	AF	<i>Pterocarpus soyauxii</i>	266
African Pencil Cedar	AF	<i>Juniperus procera</i>	237
African-Walnut	AF	<i>Lovoa trichilioides</i>	243
Afrormosia	AF	<i>Pericopsis elata</i> , syn. <i>Afrormosia elata</i>	261
Afzelia	AF	<i>Afzelia</i> spp.	179
Agba	AF	<i>Gossweilerodendron balsamiferum</i>	228
Agboin	AF	<i>Piptadeniastrum africanum</i>	262
Aiele	AF	<i>Canarium schweinfurthii</i>	196
Aji	AM	<i>Clarisia racemosa</i>	52
Ako	AF	<i>Antiaris</i> spp.	184
Akom	AF	<i>Terminalia superba</i>	280
Akomu	AF	<i>Pycnanthus angolensis</i>	268
Alan	AS	<i>Shorea</i> spp. (Dark red meranti-red lauan group)	392
Albarco	AM	<i>Cariniana</i> spp. and <i>C. pyriformis</i>	43
Albizzia	AF	<i>Albizia</i> spp.	180
Alerce	AM	<i>Fitzroya cupressoides</i>	81
Algarrobo	AM	<i>Hymenaea courbaril</i>	95
Aligna	AF	<i>Afzelia</i> spp.	179
Almacigo	AM	<i>Bursera simaruba</i>	34
Almon	AS	<i>Shorea</i> spp. (Light red meranti-light red lauan group)	393
Almond Wood, Indian	AS	<i>Terminalia catappa</i>	402
Alone	AF	<i>Bombax</i> spp.	191
Alstonia	AF	<i>Alstonia congensis</i> and <i>A. boonei</i>	181
Amaranth	AM	<i>Peltogyne</i> spp.	124
Amazakoue	AF	<i>Guibourtia ehie</i>	231
Amazoue	AF	<i>Guibourtia ehie</i>	231
Amboyna Burl	AS	<i>Pterocarpus indicus</i>	385

¹ Tropical America (AM); Africa (AF); Southeast Asia and Oceania (AS).

Trade name	Region of origin ¹	Scientific name	page
Amburana	AM	<i>Amburana cearensis</i>	14
Amendoim	AM	<i>Pterogyne nitens</i>	143
American Muskwood	AM	<i>Guarea</i> spp.	86
Amoora	AS	<i>Amoora</i> spp.	303
Anan	AS	<i>Fagraea</i> spp.	348
Anaura	AM	<i>Licania</i> spp.	101
Andaman Padauk	AS	<i>Pterocarpus dalbergioides</i>	384
Andiroba	AM	<i>Carapa guianensis</i>	41
Andoung	AF	<i>Monopetalanthus heitzii</i>	250
Anegre	AF	<i>Aningeria</i> spp.	183
Angelica Tree	AM	<i>Dendropanax arboreus</i>	68
Angelin	AM	<i>Andira inermis</i>	17
Angelique	AM	<i>Dicorynia guianensis</i>	71
Angueuk	AF	<i>Ongokea gore</i>	258
Aningeria	AF	<i>Aningeria</i> spp.	183
Antiaris	AF	<i>Antiaris</i> spp.	184
Apa	AF	<i>Afzelia</i> spp.	179
Apitong	AS	<i>Dipterocarpus</i> spp.	334
Aprono	AF	<i>Mansonia altissima</i>	246
Araracanea	AM	<i>Aspidosperma</i> spp. (Araracanga group)	21
Arariba	AM	<i>Centrolobium</i> spp.	50
Arariba	AM	<i>Sickingia</i> spp.	151
Arere	AF	<i>Triplochiton scleroxylon</i>	284
Aromata	AM	<i>Clathrotropis</i> spp.	53
Australian-Maple	AS	<i>Flindersia</i> spp.	349
Australian Red-Cedar	AS	<i>Cedrela</i> spp.	319
Avodire	AF	<i>Turreanthus africanus</i>	286
Ayan	AF	<i>Distemonanthus benthamianus</i>	216
Ayous	AF	<i>Triplochiton scleroxylon</i>	284
Azobe	AF	<i>Lophira alata</i>	242
Baboen	AM	<i>Virola</i> spp.	167
Badi	AF	<i>Nauclea diderrichii</i>	253
Bagasse	AM	<i>Bagassa guianensis</i>	24
Bagtikan	AS	<i>Parashorea</i> spp.	375
Bahia	AF	<i>Mitragyna ciliata</i>	249
Baku	AF	<i>Tieghemella heckelii</i> and <i>T. africana</i>	283
Balata	AM	<i>Manilkara bidentata</i>	108
Balau	AS	<i>Shorea</i> spp. (Balau group)	390
Balsa	AM	<i>Ochroma pyramidale</i> , syn. <i>O. lagopus</i>	116
Balsamo	AM	<i>Myroxylon balsamum</i>	113
Banak	AM	<i>Virola</i> spp.	167
Bannia	AM	<i>Swartzia</i> spp.	156
Banuyo	AS	<i>Wallaceodendron celebicum</i>	410
Baracara	AM	<i>Ormosia</i> spp.	120
Baromalli	AM	<i>Catostemma</i> spp.	45
Basralocus	AM	<i>Dicorynia guianensis</i>	452
Batai	AS	<i>Albizia falcata</i> , syn. <i>A. falcata</i>	299
Beech, Myrtle-	AS	<i>Nothofagus</i> spp.	372
Beefwood	AM	<i>Manilkara bidentata</i>	108
Belian	AS	<i>Eusideroxylon zwageri</i>	347
Benge	AF	<i>Guibourtia arnoldiana</i>	230
Benguet Pine	AS	<i>Pinus insularis</i> , syn. <i>P. kesiya</i> and <i>P. khasya</i>	378
Benin Mahogany	AF	<i>Khaya grandifoliola</i> and <i>K. senegalensis</i>	238
Benuang	AS	<i>Octomeles sumatrana</i>	373
Berangan	AS	<i>Castanopsis</i> spp.	317
Berlinia	AF	<i>Berlinia</i> spp.	190
Bete	AF	<i>Carapa procera</i>	197
Bethabara	AM	<i>Tabebuia</i> spp. (Lapacho group)	159

Trade name	Region of origin ¹	Scientific name	page
Bilinga	AF	<i>Nauclea diderrichii</i>	253
Bintangor	AS	<i>Calophyllum</i> spp.	314
Binuang	AS	<i>Octomeles sumatrana</i>	373
Bishopwood	AS	<i>Bischofia javanica</i>	311
Bitter Angelim	AM	<i>Vatairea</i> spp.	166
Black Afara	AF	<i>Terminalia ivorensis</i>	279
Black Cabbage-Bark	AM	<i>Lonchocarpus</i> spp.	103
Black Wattle	AS	<i>Acacia mollissima</i> , syn. <i>A. mearnsii</i>	296
Blackwood, African	AF	<i>Dalbergia melanoxylon</i>	211
Blackwood, Australian	AS	<i>Acacia melanoxylon</i>	295
Blue Mahoe	AM	<i>Hibiscus elatus</i> and <i>H. tillaceus</i>	90
Bluegum	AS	<i>Eucalyptus globulus</i>	344
Bocote	AM	<i>Cordia</i> spp. (Hard-wooded, dark-colored Gerascanthus group)	55
Bombax	AF	<i>Bombax</i> spp.	191
Bombay, White	AS	<i>Terminalia procera</i>	403
Bongeale	AF	<i>Sterculia oblonga</i>	274
Borneo Camphorwood	AS	<i>Dryobalanops</i> spp.	336
Borneo Ironwood	AS	<i>Eusideroxylon zwageri</i>	347
Bosse	AF	<i>Guarea cedrata</i> and <i>G. thompsonii</i>	229
Boxwood, Maracaibo	AM	<i>Gossypiospermum praecox</i>	83
Boxwood, San Domingo	AM	<i>Phyllostylon brasiliensis</i>	127
Boxwood, West Indian	AM	<i>Gossypiospermum praecox</i>	83
Brazil-Nut Tree	AM	<i>Bertholletia excelsa</i>	26
Brazilian-Walnut	AM	<i>Phoebe porosa</i>	126
Broad-Leaved Tea-Tree	AS	<i>Melaleuca quinquenervia</i> , syn. <i>M. leucadendron</i>	366
Brown Silverballi	AM	<i>Licaria</i> spp.	102
Brush Box	AS	<i>Tristania</i> spp.	407
Bubinga	AF	<i>Guibourtia</i> spp.	232
Bulletwood	AM	<i>Manilkara bidentata</i>	108
Burada	AM	<i>Parinari</i> spp.	123
Burkea	AF	<i>Burkea africana</i>	195
Burma Lancewood	AS	<i>Homalium</i> spp.	356
Burma Padauk	AS	<i>Pterocarpus macrocarpus</i>	386
Cagui	AM	<i>Caryocar</i> spp.	44
Caimito	AM	<i>Cynodendron</i> spp. and <i>Chrysophyllum</i> spp.	63
Cajeput	AS	<i>Melaleuca quinquenervia</i> , syn. <i>M. leucadendron</i>	366
Camphor Wood	AS	<i>Cinnamomum</i> spp.	322
Camphorwood, Borneo	AS	<i>Dryobalanops</i> spp.	336
Camphorwood, East African	AF	<i>Ocotea usambarensis</i>	255
Canalete	AM	<i>Cordia</i> spp. (Hard-wooded, dark-colored Gerascanthus group)	55
Cananga	AS	<i>Canarium odoratum</i>	315
Canarium, African	AF	<i>Canarium schweinfurthii</i>	196
Canary Wood	AM	<i>Centrolobium</i> spp.	50
Candle Tree	AM	<i>Dacryodes excelsa</i>	64
Canela-Rosa	AM	<i>Persea</i> spp.	125
Canelo	AM	<i>Nectandra</i> spp.	114
Cangerana	AM	<i>Cabralea cangerana</i>	36
Caoba	AM	<i>Swietenia macrophylla</i>	157
Capomo	AM	<i>Brosimum</i> spp. (Alicastrum group)	29
Capote	AM	<i>Sterculia pruriens</i>	155
Carapa	AM	<i>Carapa guianensis</i>	41
Carbonero	AM	<i>Piptadenia pittieri</i> and <i>Piptadenia</i> spp.	132

Trade name	Region of origin ¹	Scientific name	page
Carne D'Anta	AM	<i>Maytenus</i> spp.	109
Castanheiro	AM	<i>Bertholletia excelsa</i>	26
Casuarina	AS	<i>Casuarina</i> spp.	318
Cativo	AM	<i>Prioria copaifera</i>	139
Caviuna	AM	<i>Machaerium</i> spp.	106
Cedar, African Pencil	AF	<i>Juniperus procera</i>	237
Cedar, Mlanje	AF	<i>Widdringtonia whytei</i>	289
Cedar, Spanish-	AM	<i>Cedrela</i> spp.	47
Cedro	AM	<i>Cedrela</i> spp.	47
Cedro Macho	AM	<i>Carapa guianensis</i>	41
Cedro-Rana	AM	<i>Cedrelinga catenaeformis</i>	48
Ceiba	AF	<i>Ceiba pentandra</i>	200
Ceiba	AM	<i>Ceiba pentandra</i>	49
Celtis, African	AF	<i>Celtis</i> spp.	201
Champaca	AS	<i>Michelia</i> spp.	370
Chanfuta	AF	<i>Azelia</i> spp.	179
Cheesewood, White	AS	<i>Alstonia</i> spp.	302
Chenchen	AF	<i>Antiaris</i> spp.	184
Chengal	AS	<i>Balanocarpus</i> spp.	309
Chewstick	AM	<i>Symphonia globulifera</i>	158
Chicha	AM	<i>Sterculia apetala</i>	154
Chicha Brava	AM	<i>Sterculia pruriens</i>	155
Chickrassy	AS	<i>Chukrasia tabularis</i>	321
Chinaberry Tree	AS	<i>Melia azedarach</i>	367
Chuglam, White	AS	<i>Terminalia bialata</i>	401
Chumprak	AS	<i>Heritiera</i> spp., syn. <i>Tarrietia</i> spp.	355
Chupon	AM	<i>Pradosia</i> spp.	138
Cinnamon Wood	AS	<i>Cinnamomum</i> spp.	322
Cocobolo	AM	<i>Dalbergia retusa</i>	66
Coffeewood	AM	<i>Caesalpinia</i> spp., syn. <i>Libidibia</i> spp.	37
Coigue	AM	<i>Nothofagus dombeyi</i>	115
Congowood	AF	<i>Lovoa trichilioides</i>	243
Copaia	AM	<i>Jacaranda copaia</i>	98
Copaiba	AM	<i>Copaifera</i> spp.	54
Copal	AM	<i>Protium</i> spp.	140
Cordia	AS	<i>Cordia</i> spp.	323
Cordia, West African	AF	<i>Cordia millenii</i> and <i>C. platythyrsa</i>	205
Cordyla	AF	<i>Cordyla africana</i>	206
Courbaril	AM	<i>Hymenaea courbaril</i>	95
Cow Tree	AM	<i>Couma macrocarpa</i>	58
Cow-Tree	AM	<i>Brosimum</i> spp. (Utile group)	30
Crabwood	AM	<i>Carapa guianensis</i>	41
Crabwood, African	AF	<i>Carapa procera</i> and <i>C. grandiflora</i>	197
Cramantee	AM	<i>Guarea</i> spp.	86
Cuangare	AM	<i>Dialyanthera</i> spp.	70
Curupay	AM	<i>Anadenanthera macrocarpa</i> , syn. <i>Piptadenia macrocarpa</i>	16
Curupi	AM	<i>Sapium</i> spp.	148
Cypress-Pine, White	AS	<i>Callitris glauca</i> , syn. <i>C. columellaris</i>	313
Dabema	AF	<i>Piptadeniastrum africanum</i>	262
Dahoma	AF	<i>Piptadeniastrum africanum</i>	262
Dakua	AS	<i>Agathis</i> spp.	298
Daniellia	AF	<i>Daniellia ogea</i> and <i>D. thurifera</i>	212
Danta	AF	<i>Nesogordonia papaverifera</i>	254
Dao	AS	<i>Dracontomelum</i> spp.	335

Trade name	Region of origin ¹	Scientific name	page
Darah Darah	AS	<i>Myristica</i> spp. and <i>Knema</i> spp.	371
Dark Red Meranti	AS	<i>Shorea</i> spp. (Dark red meranti-red lauan group)	392
Dark Red Seraya	AS	<i>Shorea</i> spp. (Dark red meranti-red lauan group)	392
Dau	AS	<i>Dipterocarpus</i> spp.	334
Degame	AM	<i>Calycophyllum candidissimum</i>	39
Deglupta	AS	<i>Eucalyptus deglupta</i>	342
Demerara Greenheart	AM	<i>Ocotea rodiaei</i>	117
Determa	AM	<i>Ocotea rubra</i>	119
Difou	AF	<i>Morus mesozygia</i>	251
Dillenia	AS	<i>Dillenia</i> spp.	332
Dimpampi	AF	<i>Baillonella toxisperma</i>	189
Dina	AF	<i>Swartzia fistuloides</i>	277
Djedoe	AM	<i>Sclerolobium</i> spp.	150
Douka	AF	<i>Tieghemella heckelii</i> and <i>T. africana</i>	283
Doum	AF	<i>Ceiba pentandra</i>	200
Doussie	AF	<i>Azelia</i> spp.	179
Durian	AS	<i>Durio</i> spp. and <i>Neesia</i> spp.	338
Duru	AM	<i>Apeiba</i> spp.	19
East African Camphorwood	AF	<i>Ocotea usambarensis</i>	255
East African Olive	AF	<i>Olea hochstetteri</i>	257
East African Satinwood	AF	<i>Fagara macrophylla</i>	224
East Indian Ebony	AS	<i>Diospyros</i> spp.	333
East Indian Satinwood	AS	<i>Chloroxylon swietenia</i>	455
Ebony, African	AF	<i>Diospyros</i> spp.	215
Ebony, East Indian	AS	<i>Diospyros</i> spp.	333
Ekebergia	AF	<i>Ekebergia rueppelliana</i>	217
Ekhimi	AF	<i>Piptadeniastrum africanum</i>	262
Ekki	AF	<i>Lophira alata</i>	242
Ekop	AF	<i>Tetraberlinia tubmaniana</i>	282
Ekpogoi	AF	<i>Berlinia</i> spp.	190
Elemi	AF	<i>Canarium schweinfurthii</i>	196
Emeri	AF	<i>Terminalia ivorensis</i>	279
Encino	AM	<i>Quercus</i> spp.	145
Eng	AS	<i>Dipterocarpus</i> spp.	334
Envireira	AM	<i>Sterculia pruriens</i>	155
Epro	AF	<i>Nesogordonia papaverifera</i>	254
Erima	AS	<i>Octomeles sumatrana</i>	373
Erimado	AF	<i>Ricinodendron heudelotii</i>	270
Esa	AF	<i>Celtis</i> spp.	201
Espave	AM	<i>Anacardium excelsum</i>	15
Essia	AF	<i>Combretodendron macrocarpum</i> , syn. <i>C. africanum</i>	204
Estribeiro	AM	<i>Luehea</i> spp.	104
Eveuss	AF	<i>Klainedoxa gabonensis</i>	241
Eyong	AF	<i>Sterculia oblonga</i>	274
Eyoum	AF	<i>Dialium dinklagei</i>	213
Faro	AF	<i>Daniellia ogea</i> and <i>D. thurifera</i>	212
Faveira	AM	<i>Vatairea</i> spp.	166
Fiddlewood	AM	<i>Vitex</i> spp.	168
Figueroa	AM	<i>Carapa guianensis</i>	41
Foengoe	AM	<i>Parinari</i> spp.	123
Frake	AF	<i>Terminalia superba</i>	280
Framire	AF	<i>Terminalia ivorensis</i>	279
Frijolillo	AM	<i>Pseudosamanea guachapele</i>	141
Fromager	AF	<i>Ceiba pentandra</i>	49

Trade name	Region of origin ¹	Scientific name	page
Fuma	AF	<i>Ceiba pentandra</i>	200
Fustic	AM	<i>Chlorophora tinctoria</i>	51
Gaboon	AF	<i>Aucoumea klaineana</i>	185
Gagil	AS	<i>Hopea</i> spp.	357
Gangaw	AS	<i>Mesua ferrea</i>	368
Gedu Nohor	AF	<i>Entandrophragma angolense</i>	218
Genipa	AM	<i>Genipa americana</i>	82
Geronggang	AS	<i>Cratoxylon arborescens</i>	325
Gmelina	AS	<i>Gmelina arborea</i>	352
Gommier	AM	<i>Dacryodes excelsa</i>	64
Goncalo Alves	AM	<i>Astronium graveolens</i>	23
Granadillo	AM	<i>Dalbergia retusa</i>	66
Greenheart, Demerara	AM	<i>Ocotea rodiaei</i>	117
Grevillea	AS	<i>Grevillea robusta</i>	354
Grignon Fou	AM	<i>Qualea</i> spp.	144
Gronfoeloe	AM	<i>Qualea</i> spp.	144
Grumixava	AM	<i>Micropholis</i> spp.	110
Guachapele	AM	<i>Pseudosamanea guachapele</i>	141
Guacimo	AM	<i>Luehea</i> spp.	104
Guanacaste	AM	<i>Enterolobium cyclocarpum</i>	75
Guarea	AF	<i>Guarea cedrata</i> and <i>G. thompsonii</i>	229
Guatambu	AM	<i>Balfourodendron riedelianum</i>	25
Guayacan	AM	<i>Guaiaacum</i> spp.	85
Gubas	AS	<i>Endospermum</i> spp.	341
Gumbo-Limbo	AM	<i>Bursera simaruba</i>	34
Gumhar	AS	<i>Gmelina arborea</i>	352
Gurjun	AS	<i>Dipterocarpus</i> spp.	334
Haiari	AM	<i>Alexa imperatricis</i>	13
Haiariballi	AM	<i>Alexa imperatricis</i>	13
Haldu	AS	<i>Adina cordifolia</i>	297
Hobo	AM	<i>Spondias mombin</i>	153
Hog Plum	AM	<i>Spondias mombin</i>	153
Homalium, African	AF	<i>Homalium</i> spp.	233
Hoop-Pine	AS	<i>Araucaria</i> spp.	306
Hura	AM	<i>Hura crepitans</i>	93
Huynh	AS	<i>Heritiera</i> spp.	355
Idigbo	AF	<i>Terminalia ivorensis</i>	279
Ilimo	AS	<i>Octomeles sumatrana</i>	373
Ilomba	AF	<i>Pycnanthus angolensis</i>	268
Imbuia	AM	<i>Phoebe porosa</i>	126
Incenso	AF	<i>Daniellia ogea</i> and <i>D. thurifera</i>	212
Indian Almond Wood	AS	<i>Terminalia catappa</i>	402
Indian Laurel	AS	<i>Terminalia tomentosa</i> complex	404
Indian Rosewood	AS	<i>Dalbergia latifolia</i>	330
Ipe	AM	<i>Tabebuia</i> spp. (Lapacho group)	159
Ipil	AS	<i>Intsia bijuga</i> and <i>I. palembanica</i>	358
Iroko	AF	<i>Chlorophora excelsa</i> and <i>C. regia</i>	203
Ironwood, Borneo	AS	<i>Eusideroxylon zwageri</i>	347
Ishpingo	AM	<i>Amburana cearensis</i>	14
Izombe	AF	<i>Testulea gabonensis</i>	281
Jabillo	AM	<i>Hura crepitans</i>	93
Jacaranda	AM	<i>Dalbergia nigra</i>	65
Jacareuba	AM	<i>Calophyllum brasiliense</i>	38
Jagua	AM	<i>Genipa americana</i>	82

Trade name	Region of origin ¹	Scientific name	page
Jarana	AM	<i>Holopyxidium jarana</i>	91
Jarah	AS	<i>Eucalyptus marginata</i>	343
Jelutong	AS	<i>Dyera costulata</i>	339
Jequitiba	AM	<i>Cariniana pyriformis</i> and <i>Cariniana</i> spp.	43
Jobo	AM	<i>Spondias mombin</i>	153
Jongkong	AS	<i>Dactylocladus stenostachys</i>	329
Jucaro	AM	<i>Bucida buceras</i>	32
Jutahy	AM	<i>Dialium guianense</i>	69
Kabukalli	AM	<i>Goupia glabra</i>	84
Kadam	AS	<i>Anthocephalus chinensis</i> , syn. <i>A. cadamba</i>	304
Kakeralli	AM	<i>Eschweilera</i> spp.	78
Kamassi	AF	<i>Gonioma kamassi</i>	227
Kambala	AF	<i>Chlorophora excelsa</i> and <i>C. regia</i>	203
Kandis	AS	<i>Garcinia</i> spp.	350
Kaneelhart	AM	<i>Licaria</i> spp.	102
Kapoer	AS	<i>Dryobalanops</i> spp.	336
Kapok-Tree	AM	<i>Ceiba pentandra</i>	49
Kapur	AS	<i>Dryobalanops</i> spp.	336
Karri	AS	<i>Eucalyptus diversicolor</i>	343
Kasai	AS	<i>Pometia</i> spp.	382
Kauri	AS	<i>Agathis</i> spp.	298
Kauta	AM	<i>Licania</i> spp.	101
Kauvula	AS	<i>Endospermum</i> spp.	341
Kayu Malam	AS	<i>Diospyros</i> spp.	333
Kedondong	AS	<i>Canarium</i> spp.	316
Kekatong	AS	<i>Cynometra</i> spp.	327
Keladan	AS	<i>Dryobalanops</i> spp.	336
Kelat	AS	<i>Eugenia</i> spp.	346
Keledang	AS	<i>Artocarpus</i> spp.	307
Kelobra	AM	<i>Enterolobium cyclocarpum</i>	75
Kembang	AS	<i>Heritiera</i> spp.	355
Kempas	AS	<i>Koompassia malaccensis</i>	359
KerANJI	AS	<i>Dialium</i> spp.	331
KeruIng	AS	<i>Dipterocarpus</i> spp.	334
Kevazingo	AF	<i>Guibourtia</i> spp.	232
Kirikawa	AM	<i>Iryanthera</i> spp.	97
Kirundo	AF	<i>Antiaris</i> spp.	184
Klinki-Pine	AS	<i>Araucaria</i> spp.	306
Kokko	AS	<i>Albizia lebbek</i>	301
Kokriki	AM	<i>Ormosia</i> spp.	120
Kokrodua	AF	<i>Pericopsis elata</i>	261
Kopie	AM	<i>Goupia glabra</i>	84
"Korina"	AF	<i>Terminalia superba</i>	280
Kosipo	AF	<i>Entandrophragma candollei</i>	219
Kotibe	AF	<i>Nesogordonia papaverifera</i>	254
Koto	AF	<i>Pterygota</i> spp.	267
Krabak	AS	<i>Anisoptera</i> spp.	304
Krapa	AM	<i>Carapa guianensis</i>	41
Kulim	AS	<i>Scorodocarpus borneensis</i>	389
Kurokai	AM	<i>Protium</i> spp.	140
Kusia	AF	<i>Nauclea diderrichii</i>	253
Kusiaba	AF	<i>Nauclea diderrichii</i>	253
Kwao	AS	<i>Adina cordifolia</i>	297
Kwari	AM	<i>Vochysia</i> spp.	169

Trade name	Region of origin ¹	Scientific name	page
Kyenkyen	AF	<i>Antiaris</i> spp.	184
Lacewood	AS	<i>Grevillea robusta</i>	354
Lampati	AS	<i>Duabanga</i> spp.	337
Lancewood, Burma	AS	<i>Homalium</i> spp.	356
Lancewood, West Indian	AM	<i>Oxandra lanceolata</i>	121
Landa	AF	<i>Erythroxylum manii</i>	223
Landosan	AF	<i>Aningeria</i> spp.	183
Lapacho	AM	<i>Tabebuia</i> spp. (Lapacho group)	159
Lauan, Light Red	AS	<i>Shorea</i> spp. (Light red meranti-light red lauan group)	393
Lauan, Red	AS	<i>Shorea</i> spp. (Dark red meranti-red lauan group)	392
Lauan, White	AS	<i>Pentacme contorta</i>	377
Laurel	AM	<i>Nectandra</i> spp.	114
Laurel Blanco	AM	<i>Cordia</i> spp. (Soft-wooded, light-colored Alliodora group)	56
Laurel, Indian	AS	<i>Terminalia tomentosa</i> complex	404
Leche Perra	AM	<i>Helicostylis tomentosa</i>	87
Lechero	AM	<i>Sapium</i> spp.	148
Lemonwood	AM	<i>Calycophyllum candidissimum</i>	39
Letterwood	AM	<i>Piratinera guianensis</i> , syn. <i>Brosimum guianensis</i>	133
Light Red Lauan	AS	<i>Shorea</i> spp. (Light red meranti-light red lauan group)	393
Light Red Meranti	AS	<i>Shorea</i> spp. (Light red meranti-light red lauan group)	393
Lignumvitae	AM	<i>Guaiaacum</i> spp.	85
Limba	AF	<i>Terminalia superba</i>	280
Lingue	AM	<i>Persea</i> spp.	128
Loktob	AS	<i>Duabanga</i> spp.	337
Long John	AM	<i>Triplaris</i> spp.	164
Longui	AF	<i>Gambeya africana</i> , syn. <i>Chrysophyllum africanum</i>	226
Louro	AM	<i>Aniba</i> spp.	18
Louro Pardo	AM	<i>Cordia</i> spp. (Hard-wooded, dark-colored Gerascanthus group)	55
Louro Vermelho	AM	<i>Ocotea rubra</i>	119
Lovoa	AF	<i>Lovoa trichilioides</i>	243
Lumbayau	AS	<i>Heritiera</i> spp.	355
Macawood	AM	<i>Platymiscium</i> spp.	135
Machang	AS	<i>Mangifera</i> spp.	365
Machilus	AS	<i>Machilus</i> spp.	364
Mafu	AF	<i>Fagaropsis angolensis</i>	225
Magas	AS	<i>Duabanga</i> spp.	337
Magnolia	AM	<i>Magnolia</i> spp.	107
Maho	AM	<i>Sterculia pruriens</i>	155
Mahoe, Blue	AM	<i>Hibiscus elatus</i> and <i>H. tiliaceus</i>	90
Mahogany, African	AF	<i>Khaya grandifoliola</i> and <i>K. senegalensis</i>	238
Mahogany, African	AF	<i>Khaya ivorensis</i> and <i>K. anthothea</i>	239
Mahogany, Benin	AF	<i>Khaya grandifoliola</i> and <i>K. senegalensis</i>	238
Mahogany, Honduras	AM	<i>Swietenia macrophylla</i>	157
Mahogany, Senegal	AF	<i>Khaya grandifoliola</i> and <i>K. senegalensis</i>	238
Mahot	AM	<i>Couratari</i> spp.	59
Mai Pradoo	AS	<i>Pterocarpus macrocarpus</i>	386
Makore	AF	<i>Tieghemella heckelii</i> and <i>T. africana</i>	283
Malas	AS	<i>Homalium</i> spp.	356
Manbarklak	AM	<i>Eschweilera</i> spp.	78
Mandioqueira	AM	<i>Qualea</i> spp.	144
Mangle Colorado	AM	<i>Rhizophora mangle</i>	147
Mango	AS	<i>Mangifera</i> spp.	365
Mafio	AM	<i>Podocarpus</i> spp.	136

Trade name	Region of origin ¹	Scientific name	page
Manni	AM	<i>Symphonia globulifera</i>	158
Mansonia	AF	<i>Mansonia altissima</i>	246
Maple, Australian	AS	<i>Flindersia</i> spp.	349
Maracaibo Lignum-Vitae	AM	<i>Bulnesia arborea</i>	33
Marakaipo	AM	<i>Iryanthera</i> spp.	97
Maranggo	AS	<i>Azadirachta</i> spp.	308
Marishballi	AM	<i>Licania</i> spp.	101
Marupa	AM	<i>Simarouba</i> spp.	152
Masa	AM	<i>Tetragastris</i> spp.	163
Mastate	AM	<i>Poulsenia armata</i>	137
Mayapis	AS	<i>Shorea</i> spp. (Light-red meranti-light red lauan group)	393
Mayflower	AM	<i>Tabebuia</i> spp. (Roble group)	169
Mbambakofi	AF	<i>Azelia</i> spp.	179
Mbanko	AF	<i>Odyndea</i> spp.	256
Mbarika	AF	<i>Isobertinia scheffleri</i>	235
Mecrusse	AF	<i>Androstachys johnsonii</i>	182
Medang	AS	<i>Litsea</i> spp.	362
Melawis	AS	<i>Gonystylus</i> spp.	353
Mendou	AF	<i>Brachystegia</i> spp.	193
Mengkulang	AS	<i>Heritiera</i> spp., syn. <i>Tarrietia</i> spp.	355
Meranti, Dark Red	AS	<i>Shorea</i> spp. (Dark red meranti-red lauan group)	392
Meranti, Light Red	AS	<i>Shorea</i> spp. (Light red meranti-light red lauan group)	393
Meranti, White	AS	<i>Shorea</i> spp. (White meranti group)	395
Meranti, Yellow	AS	<i>Shorea</i> spp. (Yellow meranti group)	396
Merawan	AS	<i>Hopea</i> spp.	357
Merbau	AS	<i>Intsia biuga</i> and <i>I. palembanica</i>	358
Merkus Pine	AS	<i>Pinus merkusi</i>	379
Merpauh	AS	<i>Swintonia</i> spp.	398
Mersawa	AS	<i>Anisoptera</i> spp.	304
Meru-Oak	AF	<i>Vitex doniana</i>	288
Mexican Cypress	AM	<i>Cupressus lusitanica</i>	61
Mierenhout	AM	<i>Triplaris</i> spp.	164
Missanda	AF	<i>Erythrophleum ivorense</i> and <i>E. guineense</i>	222
Mkora	AF	<i>Azelia</i> spp.	179
Mlanje-Cedar	AF	<i>Widdringtonia whytei</i>	289
Moabi	AF	<i>Baillonella toxisperma</i>	189
Molave	AS	<i>Vitex</i> spp.	409
Molucca Albizzia	AS	<i>Albizia falcataria</i> , syn. <i>A. falcata</i>	299
Monkey Pot	AM	<i>Lecythis</i> spp.	100
Mora	AM	<i>Mora excelsa</i> and <i>M. gonggrijpii</i>	111
Mora Amarilla	AM	<i>Chlorophora tinctoria</i>	51
Morabukea	AM	<i>Mora excelsa</i> and <i>M. gonggrijpii</i>	111
Morado	AM	<i>Peltogyne</i> spp.	124
Morillo	AM	<i>Trophis</i> spp.	165
Morototo	AM	<i>Didymopanax morototoni</i>	72
Movingui	AF	<i>Distemonanthus benthamianus</i>	216
"Mozambique"	AF	<i>Guibourtia ehie</i>	231
Mtambara	AF	<i>Cephalosphaera usambarensis</i>	202
Mtundu	AF	<i>Brachystegia spiciformis</i>	194
Mubura	AF	<i>Parinari excelsa</i>	260
Mueri	AF	<i>Pygeum africanum</i> , syn. <i>Prunus africanum</i>	269
Muhimbi	AF	<i>Cynometra alexandri</i>	209
Muhuhu	AF	<i>Brachylaena hutchinsii</i>	192
Muiratinga	AM	<i>Brosimum</i> spp. (Alicastrum group)	29

Trade name	Region of origin ¹	Scientific name	page
Muirungi	AF	<i>Casearia battiscombei</i>	198
Mukangu	AF	<i>Aningeria</i> spp.	183
Mukulungu	AF	<i>Autranella congolensis</i>	186
Muninga	AF	<i>Pterocarpus angolensis</i>	265
Musine	AF	<i>Croton megalocarpus</i>	207
Musizi	AF	<i>Maesopsis emini</i>	244
Mussacossa	AF	<i>Azelia</i> spp.	179
Mutenye	AF	<i>Guibourtia arnoldiana</i>	230
Muwa	AF	<i>Julbernardia globiflora</i>	236
Mwafu	AF	<i>Canarium schweinfurthii</i>	196
Myrtle-Beech	AS	<i>Nothofagus</i> spp.	372
Myrtle, Tasmanian-	AS	<i>Nothofagus</i> spp.	372
Nargusta	AM	<i>Terminalia amazonia</i>	162
Narra	AS	<i>Pterocarpus indicus</i>	385
Needlewood	AS	<i>Schima</i> spp.	388
Neem	AS	<i>Azadirachta</i> spp.	308
New Guinea-Walnut	AS	<i>Dracontomelum</i> spp.	335
New Guineaewood	AS	<i>Dracontomelum</i> spp.	335
Niangon	AF	<i>Tarrietia utilis</i> and <i>T. densiflora</i>	278
Niove	AF	<i>Staudtia stipitata</i> , syn. <i>S. gabonensis</i>	273
Njabi	AF	<i>Ballonella toxisperma</i>	189
Nkobakoba	AF	<i>Baikiaea insignis</i> subsp. <i>minor</i>	187
Nogal	AM	<i>Juglans</i> spp.	99
Nongo	AF	<i>Albizia</i> spp.	180
N'tola	AF	<i>Gossweilerodendron balsamiferum</i>	228
Nyankom	AF	<i>Tarrietia utilis</i> and <i>T. densiflora</i>	278
Nyatoh	AS	<i>Palaquium</i> spp. and <i>Payena</i> spp.	374
Nzingu	AF	<i>Mitragyna ciliata</i>	249
Oak	AM	<i>Quercus</i> spp.	145
Oba	AF	<i>Irvingia gabonensis</i>	234
Obeche	AF	<i>Triplochiton scleroxylon</i>	284
Obobo	AF	<i>Guarea cedrata</i> and <i>G. thompsonii</i>	229
Oboto	AF	<i>Mammea africana</i>	245
Ocote Pine	AM	<i>Pinus oocarpa</i>	129
Odoko	AF	<i>Scottellia coriaceae</i>	271
Ofram	AF	<i>Terminalia superba</i>	280
Ofun	AF	<i>Mansonia altissima</i>	246
Ogea	AF	<i>Daniellia ogea</i> and <i>D. thurifera</i>	212
Ogiovu	AF	<i>Antiaris</i> spp.	184
Ohia	AF	<i>Celtis</i> spp.	201
Ohia	AS	<i>Metrosideros collina</i> , subsp. <i>polymorpha</i>	369
Oiticica Amarela	AM	<i>Clarisia racemosa</i>	52
Ojoche	AM	<i>Brosimum</i> spp. (Alicastrum group)	29
Okan	AF	<i>Cylicodiscus gabunensis</i>	208
Okoko	AF	<i>Sterculia oblonga</i>	274
Okoume	AF	<i>Aucoumea klaineana</i>	185
Okwen	AF	<i>Brachystegia</i> spp.	193
Olive, East African	AF	<i>Olea hochstetteri</i>	257
Olivier, White	AM	<i>Terminalia amazonia</i>	162
Omu	AF	<i>Entandrophragma candollei</i>	219
Onzang	AF	<i>Odyenda</i> spp.	256
Opepe	AF	<i>Nauclea diderrichii</i>	253
Orey	AM	<i>Camposperma panamensis</i>	40
Orientalwood	AS	<i>Endiandra palmerstonii</i>	340

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Oro	AF	<i>Antiaris</i> spp.	184
Osan	AF	<i>Aningeria</i> spp.	183
Otie	AF	<i>Pycnanthus angolensis</i>	268
Otutu	AF	<i>Nesogordonia papa verifera</i>	254
Ovangkol	AF	<i>Guibourtia ehie</i>	231
Ovoga	AF	<i>Poga oleosa</i>	264
Owewe	AF	<i>Combretodendron macrocarpum</i>	204
Oxhorn Bucida	AM	<i>Bucida buceras</i>	32
Ozigo	AF	<i>Dacryodes</i> spp.	210
Oziya	AF	<i>Daniellia ogea</i> and <i>D. thurifera</i>	212
Pacuri	AM	<i>Rheedia</i> spp.	146
Padauk, African	AF	<i>Pterocarpus soyauxii</i>	266
Padauk, Andaman	AS	<i>Pterocarpus dalbergioides</i>	384
Padauk, Burma	AS	<i>Pterocarpus macrocarpus</i>	386
Paldao	AS	<i>Dracontomelum</i> spp.	335
Palosapis	AS	<i>Anisoptera</i> spp.	304
Panga Panga	AF	<i>Millettia</i> spp.	248
Paper-Bark	AS	<i>Melaleuca quinquenervia</i>	366
Para Rubbertree	AM	<i>Hevea brasiliensis</i>	88
Para-Angelim	AM	<i>Hymenolobium excelsum</i>	166
Parana-Pine	AM	<i>Araucaria angustifolia</i>	20
Partridge Wood	AM	<i>Andira inermis</i>	17
Partridgewood	AM	<i>Caesalpinia</i> spp., syn. <i>Libidibia</i> spp.	37
Pau Amarello	AM	<i>Euxylophora paraensis</i>	80
Pau Ferro	AM	<i>Machaerium</i> spp.	106
Pau Marfim	AM	<i>Balfourodendron riedelianum</i>	25
Penak	AS	<i>Balanocarpus</i> spp.	309
Perepat	AS	<i>Sonneratia</i> spp.	397
Peroba De Campos	AM	<i>Paratecoma peroba</i>	122
Peroba Rosa	AM	<i>Aspidosperma</i> spp. (Peroba group)	22
Peroba, White	AM	<i>Paratecoma peroba</i>	122
Persian Lilac	AS	<i>Melia azedarach</i>	367
Perupok	AS	<i>Lophopetalum</i> spp.	363
Phdiek	AS	<i>Anisoptera</i> spp.	304
Pillarwood	AF	<i>Cassipourea malosana</i>	199
Pilon	AM	<i>Hyeronima alchorneoides</i> and <i>H. laxiflora</i>	94
Pine, Benguet	AS	<i>Pinus insularis</i> , syn. <i>P. kesiya</i> and <i>P. khasya</i>	378
Pine, Caribbean	AM	<i>Pinus caribaea</i>	128
Pine, Merkus	AS	<i>Pinus merkusii</i>	379
Pine, Oocarpa	AM	<i>Pinus oocarpa</i>	129
Pine, Patula	AM	<i>Pinus patula</i>	131
Pipli	AS	<i>Bucklandia populnea</i>	312
Piquia	AM	<i>Caryocar</i> spp.	44
Pochote	AM	<i>Bombacopsis quinata</i>	27
Podo	AF	<i>Podocarpus</i> spp.	263
Podocarp	AM	<i>Podocarpus</i> spp.	136
Poon	AS	<i>Calophyllum</i> spp.	314
Porcupine Wood	AM	<i>Centrolobium</i> spp.	50
Possumwood	AM	<i>Hura crepitans</i>	93
Pradoo	AS	<i>Pterocarpus macrocarpus</i>	386
Primavera	AM	<i>Cybistax donnell-smithii</i> , syn. <i>Tabebuia donnell-smithii</i>	62
Pterygota	AF	<i>Pterygota</i> spp.	267
Pulai	AS	<i>Alstonia</i> spp.	302
Punch	AS	<i>Tetramerista glabra</i>	406
Purpleheart	AM	<i>Peltogyne</i> spp.	124
Putat Paya	AS	<i>Planchonia</i> spp.	380

Trade name	Region of origin ¹	Scientific name	page
Pyinkado	AS	<i>Xylocarpus xylocarpa</i>	411
Pyinma	AS	<i>Lagerstroemia</i> spp.	361
Quaruba	AM	<i>Vochysia</i> spp.	169
Quebracho	AM	<i>Schinopsis</i> spp.	149
Queensland-Maple	AS	<i>Flindersia</i> spp.	349
Queensland-Walnut	AS	<i>Endiandra palmerstonii</i>	340
Raintree	AM	<i>Pithecellobium saman</i> , syn. <i>Samanea saman</i>	134
Ramin	AS	<i>Gonystylus</i> spp.	353
Ramon	AM	<i>Trophis</i> spp.	165
Rangu	AS	<i>Koordersiodendron pinnatum</i>	360
Rauli	AM	<i>Nothofagus procera</i>	115
Red Lauan	AS	<i>Shorea</i> spp. (Dark red meranti-red lauan group)	392
Red Louro	AM	<i>Ocotea rubra</i>	119
Red Mangrove	AM	<i>Rhizophora mangle</i>	147
Red Seraya	AS	<i>Shorea</i> spp. (Light red meranti-light red lauan group)	393
Red-Cedar, Australian	AS	<i>Cedrela</i> spp.	319
Remelento	AM	<i>Rheedia</i> spp.	146
Rengas	AS	<i>Gluta</i> spp. and <i>Melanorrhoea</i> spp.	351
Resak	AS	<i>Cotylelobium</i> spp. and <i>Vatica</i> spp.	324
Resak	AS	<i>Upuna borneensis</i>	408
Rhodesian-Teak	AF	<i>Baikiaea plurijuga</i>	188
Riemhout	AM	<i>Micropholis</i> spp.	110
Rimu	AS	<i>Dacrydium</i> spp.	328
Roble	AM	<i>Quercus</i> spp.	145
Roble	AM	<i>Tabebuia</i> spp. (Roble group)	160
Rose-Maple	AS	<i>Cryptocarya</i> spp.	326
Rosewood, Brazilian	AM	<i>Dalbergia nigra</i>	65
Rosewood, Honduras	AM	<i>Dalbergia stevensonii</i>	67
Rosewood, Indian	AS	<i>Dalbergia latifolia</i>	330
Sabicu	AM	<i>Lysiloma</i> spp.	105
Safoukala	AF	<i>Dacryodes</i> spp.	210
Sajo	AM	<i>Campnosperma panamensis</i>	40
Sali	AM	<i>Tetragastris</i> spp.	163
Saman	AM	<i>Pithecellobium saman</i> , syn. <i>Samanea saman</i>	134
Samba	AF	<i>Triplochiton scleroxylon</i>	284
Sandalwood	AS	<i>Santalum album</i>	387
Sande	AM	<i>Brosimum</i> spp. (Utile group)	30
Sangre	AM	<i>Pterocarpus</i> spp.	142
Santa Maria	AM	<i>Calophyllum brasiliense</i>	38
Sapele	AF	<i>Entandrophragma cylindricum</i>	220
Sapo	AF	<i>Didelotia brevipaniculata</i>	214
Sapucaia	AM	<i>Lecythis</i> spp.	100
Satinwood, East African	AF	<i>Fagara macrophylla</i>	224
Satinwood, East Indian	AS	<i>Chloroxylon swietenia</i>	320
Satinwood, West Indian	AM	<i>Zanthoxylum flavum</i> , syn. <i>Fagara flava</i>	171
Senegal Mahogany	AF	<i>Khaya grandifoliola</i> and <i>K. senegalensis</i>	238
Sengkuang	AS	<i>Dracontomelum</i> spp.	335
Sepetir	AS	<i>Pseudosindora palustris</i> and <i>Sindora</i> spp.	383
Seraya, Dark Red	AS	<i>Shorea</i> spp. (Dark red meranti-red lauan group)	392
Seraya, Red	AS	<i>Shorea</i> spp. (Light red meranti-light red launa group)	393
Seraya, White	AS	<i>Parashorea</i> spp.	375
Seraya, Yellow	AS	<i>Shorea</i> spp. (Yellow meranti group)	396
Serrette	AM	<i>Byrsonima coriacea</i> var. <i>spicata</i> and <i>Byrsonima</i> spp.	35
Silk-Cotton-Tree	AF	<i>Ceiba pentandra</i>	200

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Silk-Cotton-Tree	AM	<i>Ceiba pentandra</i>	49
Silky-Oak	AS	<i>Grevillea robusta</i>	354
Simarouba	AM	<i>Simarouba amara</i>	152
Simpoh	AS	<i>Dillenia</i> spp.....	332
Sipo	AF	<i>Entandrophragma Utile</i>	221
Snakewood	AM	<i>Piratinera guianensis</i> , syn. <i>Brosimum guianensis</i>	133
Sorro	AF	<i>Scyphocephalum ochocoa</i>	272
Sougue	AF	<i>Parinari excelsa</i>	260
Spanish-Cedar	AM	<i>Cedrela</i> spp.....	47
Star-Apple	AM	<i>Cynodendron</i> spp. and <i>Chrysophyllum</i> spp.	63
Sterculia	AM	<i>Sterculia pruriens</i>	155
Sterculia, Brown	AF	<i>Sterculia rhinopetala</i>	275
Sterculia, Yellow	AF	<i>Sterculia oblonga</i>	274
Subaha	AF	<i>Mitragyna ciliata</i>	249
Sucupira	AM	<i>Bowdichia</i> spp.	28
Sucupira	AM	<i>Diptotropis purpurea</i>	73
Sugar-Plum	AF	<i>Uapaca</i> spp.....	287
Suradan	AM	<i>Hyeronima alchorneoides</i> and <i>H. laxiflora</i>	94
Tangare	AM	<i>Carapa guianensis</i>	41
Tangile	AS	<i>Shorea</i> spp. (Dark red meranti-red lauan group)	392
Tasmanian-Myrtle	AS	<i>Nothofagus</i> spp.	372
Tatabu	AM	<i>Diptotropis purpurea</i>	73
Tauary	AM	<i>Couratari</i> spp.....	59
Taun	AS	<i>Pometia</i> spp.	382
Tauroniro	AM	<i>Humiria balsamifera</i>	92
Tawa	AS	<i>Beilschmiedia tawa</i>	310
Tchitola	AF	<i>Oxystigma oxyphyllum</i>	259
Tea-Tree, Broad-Leaved	AS	<i>Melaleuca quinquenervia</i> , syn. <i>M. leucadendron</i>	366
Teak	AS	<i>Tectona grandis</i>	400
Tembusu	AS	<i>Fagraea</i> spp.	348
Thingan	AS	<i>Hopea</i> spp.	357
Thitka	AS	<i>Pentace</i> spp.	376
Thitmin	AS	<i>Podocarpus</i> spp.	381
Thitni	AS	<i>Amoora</i> spp.	303
Thitpok	AS	<i>Tetrameles nudiflora</i>	405
Tiama	AF	<i>Entandrophragma angolense</i>	218
Tigerwood	AF	<i>Lourea trichilioides</i> , syn. <i>L. klaineana</i>	243
Timbauba	AM	<i>Enterolobium schomburgkii</i>	76
Tola	AF	<i>Gossweilerodendron balsamiferum</i>	228
Tola Mafuta	AF	<i>Oxystigma oxyphyllum</i>	259
Tonka	AM	<i>Dipteryx odorata</i> , syn. <i>Coumarouna odorata</i>	74
Toon	AS	<i>Cedrela</i> spp.....	319
Tornillo	AM	<i>Cedrelinga catenaeformis</i>	48
Totara	AS	<i>Podocarpus</i> spp.	381
Trebol	AM	<i>Platymiscium</i> spp.	135
Trumpet-wood	AM	<i>Cecropia peltata</i>	46
Turpentine	AS	<i>Syncarpia glomulifera</i> , syn. <i>S. laurifolia</i>	399
Turpentine Tree	AM	<i>Bursera simaruba</i>	34
T'Zalam	AM	<i>Lysiloma</i> spp.	105
Ulmo	AM	<i>Eucryphia cordifolia</i>	79
Umbrella Tree	AF	<i>Musanga cecropioides</i>	252
Umiri	AM	<i>Humiria balsamifera</i>	92
Upun Batu	AS	<i>Upuna borneensis</i>	408
Urat Mata	AS	<i>Parashorea</i> spp.	375

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Utile	AF	<i>Entandrophragma utile</i>	221
Vaco	AM	<i>Magnolia</i> spp.	107
Ven-Ven	AS	<i>Anisoptera</i> spp.	304
Verawood	AM	<i>Bulnesia arborea</i>	33
Vermillion Wood	AS	<i>Pterocarpus dalbergioides</i>	384
Violetwood	AM	<i>Peltogyne</i> spp.	124
Viraro	AM	<i>Pterogyne nitens</i>	143
"Virola"	AM	<i>Dialyanthera</i> spp.	70
Vitex	AF	<i>Vitex doniana</i>	288
Wacapou	AM	<i>Vouacapoua americana</i>	170
Walele	AF	<i>Pycnanthus angolensis</i>	268
Wallaba	AM	<i>Eperua</i> spp.	77
Walnut, New Guinea-	AS	<i>Dracontomelum</i> spp.	335
Walnut, Queensland-	AS	<i>Endiandra palmerstonii</i>	340
Walnut, Tropical	AM	<i>Juglans</i> spp.	99
Wamara	AM	<i>Swartzia</i> spp.	156
Wattle, Black	AS	<i>Acacia mollissima</i> , syn. <i>A. mearnsii</i>	296
Wawa	AF	<i>Triplochiton scleroxylon</i>	284
Wenge	AF	<i>Millettia</i> spp.	248
West African Cordia	AF	<i>Cordia millenii</i> and <i>C. platythyrsa</i>	205
White Bombay	AS	<i>Terminalia procera</i>	403
White-Cedar	AM	<i>Tabebuia</i> spp. (White-cedar group).....	161
White Cheesewood	AS	<i>Alstonia</i> spp.	302
White Chuglam	AS	<i>Terminalia bialata</i>	401
White Cypress-Pine	AS	<i>Callitris glauca</i> , syn. <i>C. columellaris</i>	313
White Lauan	AS	<i>Pentacme contorta</i>	377
White Meranti	AS	<i>Shorea</i> spp. (White meranti group).....	395
White Seraya	AS	<i>Parashorea</i> spp.	375
White Tabebuia	AM	<i>Tabebuia</i> spp. (White-cedar group).....	161
Yagrumo Macho	AM	<i>Didymopanax morototoni</i>	72
Yahu	AM	<i>Sterculia pruriens</i>	155
Yang	AS	<i>Dipterocarpus</i> spp.	334
Yawaredan	AM	<i>Sclerolobium</i> spp.	150
Yellow Meranti	AS	<i>Shorea</i> spp. (Yellow meranti group).....	396
Yellow Sanders	AM	<i>Buchenavia capitata</i>	31
Yellow Seraya	AS	<i>Shorea</i> spp. (Yellow meranti group).....	396
Yellow Sterculia	AF	<i>Sterculia oblonga</i>	274
Yemeri	AM	<i>Vochysia</i> spp.	169
Zebrano	AF	<i>Microberlinia brazzavillensis</i>	247
Zebrawood	AF	<i>Microberlinia brazzavillensis</i>	247

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Wood

Chemistry – Ultrastructure – Reactions

Reprint (Edition of 1989). 17 cm x 24 cm. XII, 613 pages. 351 illustrations. Paperback. ISBN 3935638-39-6 (this version is identical to the hard-cover edition published in 1984.) Wood is an ancient raw material, but in many respects it is also very modern. As the world supply of raw materials continues to dwindle, interest in renewable natural resources has increased remarkably, including the utilization of wood and its chemical components. This book aims to give a detailed state-of-the-art survey of the chemistry and ultrastructure of wood, covering such topics as the fundamentals of wood and bark, special reactions under various environmental conditions as well as the principles of pulping, cellulose derivation, and the conversion of wood into chemicals and energy. The text is accompanied by numerous graphs and light and electron micrographs, many of them published for the first time. In addition to about 2,800 references there is an index compiling all species treated.

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