Major Timber Trees of Guyana
Timber Characteristics and Utilization

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MAJOR TIMBER TREES OF GUYANA
TIMBER CHARACTERISTICS AND UTILIZATION

J. Gérard, R.B. Miller and B.J.H. ter Welle

The Tropenbos Foundation
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The Tropenbos Series presents the results of studies and research activities related to the conservation and wise utilization of forest lands in the humid tropics. The series continues and integrates the former Tropenbos Scientific and Technical Series. The studies published in this series have been carried out within the international Tropenbos programme. Occasionally, this series may present the results of other studies which contribute to the objectives of the Tropenbos programme.

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FOREWORD

The Government of Guyana has clearly indicated that increased timber production from its considerable resources has to be beneficial to the country and its people. However, increased production must be based on sustainable management, which means that the operation must be ecologically sound and economically profitable. The possible restriction which the European Market may place on imports of tropical timber from countries which do not produce on a sustainable basis, could serve as a strong incentive in this respect.

At present the forests of Guyana cover approximately 16.5 million hectares, of which about 50% are potentially suitable for timber production. Some 240,000 cubic metres of timber are logged annually. About 40% of this production is accounted for by Greenheart *(Chlorocardium rodiei)*, the remainder comprising more than 100 species felled more or less sporadically. A more balanced selection of the numerous worthwhile marketable species will result in improved forest management and favour conservation at the same time.

The Tropenbos-Guyana programme comprises data gathering, research and training aimed at helping to achieve sustainable management systems. The programme was launched in 1989 and is monitored by a committee consisting of representatives of thirteen Guyanese institutes and agencies and three Dutch members. To facilitate its research activities, the Tropenbos Foundation works in close collaboration with Demerara Timbers Limited (DTL), a private company which holds a concession near Mabura Hill in North Central Guyana.

Guyana is uniquely placed as the base for this new type of cooperation, for the following reasons:

* Fortunately, Guyana has not suffered deforestation as have many other countries; it is the only country among the world's twelve largest rain forest nations to have undergone no real deforestation.
* There is very little risk of future deforestation because Guyana has a small population and sufficient land for agriculture, so there is no need to clear forest areas.
* Guyana has firmly asserted that all future development of its forest resources must be based on sustainable management and the protection of the environment.

In the context of the various projects and investigations designed to provide information on the timbers of Guyana, CIRAD-Forêt, the USDA Forest Service, Forest Products Laboratory and the Tropenbos Foundation have closely collaborated in the compilation of two publications:

* Wood anatomical key for identification
* Timber characteristics and utilization

The latter contains, in addition to data obtained in the course of technological tests carried out by CIRAD-Forêt, especially information drawn from existing literature.

The book should serve as a reference work for all those engaged in the timber and woodworking industries and trade who seek information on Guyanese products: loggers, dealers, wood manufacturers, and so on, as well as technical centres and research institutes.
It represents a valuable step forward towards optimizing sustainable management.

Jean-Marc Dubois
Director of CIRAD-Forêt

January 1996

1. INTRODUCTION

This book is the result of a research project launched in the context of the Tropenbos-Guyana programme, an interdisciplinary programme of cooperation between Guyana, the Netherlands and various tropical forest and wood research institutes, including CIRAD-Forêt (the Wood and Forestry Department of the 'Centre de Coopération Internationale en Recherche Agronomique pour le Développement') and the USDA, Forest Service, Forest Products Laboratory.
The general objective of the programme is to define optimum methods of managing the Guyanese forest in order to conserve and safeguard its future, while at the same time increasing timber production. Thus, it will make a valuable contribution to the economy and hence to the country's development.

This sustainable management involves the continuous felling and marketing of more species than at present. Only a few species of Guyanese woods are currently exported, and valuable hardwoods are often sold as 'mixed species'. More information on, and a better knowledge of, the timber characteristics of individual species and their performance will provide more opportunities of offering a wider range of species to the international timber market. It will also increase the profit per cubic metre; mixed hardwoods are sold at lower prices than individual species.

To provide more information on Guyanese timber species, a comprehensive series of projects has been launched, covering about 100 of the most common timber trees in the Guyanese forest belt currently logged or scheduled for future exploitation.
These projects include:

(1) Information on timber characteristics and utilization
(2) A lens key for quick identification
(3) A field guide
(4) A wood anatomical key for identification

The Timber Tests and Uses Laboratory (ESSEM), the Anatomy Laboratory of CIRAD-Forêt play a major role in projects (1) and (4) respectively.

The other institutes involved in these projects are:

* the Guyana Natural Resources Agency, Georgetown, Guyana
* the Guyana Forestry Commission, Georgetown, Guyana
* the Eidgenössische Technische Hochschule, Zurich, Switzerland
* the USDA Forest Service, Forest Products Laboratory, Madison, Wisconsin, USA
* Utrecht University, the Netherlands

The first book in the series was published in 1992; it is a field guide for the recognition of forest trees, with particular reference to bark characteristics and other morphological features (A.M. Polak: Major Timber Trees of Guyana. A Field Guide. Tropenbos Series 2, Wageningen, the Netherlands). The Lens Key was published in 1994 (Major Timber Trees of Guyana. A Lens Key. Tropenbos Series 10, Wageningen, the Netherlands).

The list of species covered by these books was compiled by A.M. Polak in close conjunction with the Tropenbos Foundation and various Guyanese forestry authorities. The species selected are found in the northern part of the country, where most of the forestry and wood processing activities are concentrated. Though the book focuses primarily on Guyana, many of the species can also be encountered in adjacent countries or even further afield; Venezuela, Suriname and French Guiana in particular have many species in common with Guyana. Some of the species listed are very widely distributed, such as *Hymenaea courbaril* (Locust), which is found all over Central and tropical South America and the Antilles.

The purpose of this book is to provide technical information to enable optimum use of the Guyanese timber species. This information includes distribution, local names, wood description, physical and mechanical characteristics, processing characteristics, natural durability and amenability to preservative treatment, etc. To facilitate an understanding of the various headings, the reader is advised to read the Explanatory Notes.

Foremost among those to whom this guide owes its origin is Ben J.H. ter Welle, former coordinator of the Tropenbos-Guyana programme, who was the instigator and manager of this project in which CIRAD-Forêt, the USDA Forest Service, Forest Products Laboratory and Tropenbos cooperated. The description of the technological characteristics of the species is the work of Michèle Chichignoud (ESSEM Laboratory, CIRAD-Forêt), who has wide experience of the compilation of works on the technology of tropical woods. Much of the information used was obtained from the CIRAD-Forêt laboratories of Gérard Déon (wood preservation), Pierre Détienne (wood anatomy), Daniel Fouquet (wood technology, Kourou, French Guiana) and Bernard Parant (timber tests and uses). Mr. J. Singh (University of Guyana) is acknowledged for his compilation of the 'grey literature' available at the Guyana Forestry Commission.
Special thanks are due to Prof.Dr. Paul J.M. Maas and Dr. Bep M.W. Mennega of the Herbarium Division, Utrecht University, for proof-reading and advice on nomenclature. Finally, the unlimited support of the Tropenbos office, especially that of Mrs. Wanda C.M. Tammens-de Rooij, in the final preparations of this book, has been extremely helpful.

2. EXPLANATORY NOTES

Scientific name
The scientific name presently adopted by botanists. The name of one or several authors who have described the species appears in full or abbreviated.

Synonym
Occasionally common synonyms are listed.

Guyanese name
The vernacular name most commonly used in Guyana.

Family
Botanical family to which one or several species belong.

Vernacular names
Vernacular names used in Guyana and other producing countries.

International trade name
The most commonly used name in international trade.

Distribution
The map shows the distribution of the species in Northern South America.

Tree description
The bole diameters are measured at 1.30 m above the soil or at 0.1 m above the highest buttress in the case of trees with buttresses reaching higher than 1.30 m.

Wood description
Sapwood
- indication of differentiation between sapwood and heartwood, colour and average thickness

Heartwood
- colour

Grain (= general alignment of fibers)
- straight
- slightly and/or occasionally interlocked
- highly and/or frequently interlocked

Texture (= visual impression given by the relative sizes and arrangement of vessels)
- coarse
- medium
- fine

Technological characteristics

The numerical values of the technological properties correspond to within-species means computed from several trees and from several test samples per tree. The variability is not equal for all species and varies with the measured physical and mechanical characteristics of timber.

Physical properties

Green density

This value, expressed in g/cm³, corresponds to the average weight of wood recently felled.

Air-dry density at 12% MC

These values, expressed in g/cm³, indicate the possible range or the average of the weight per volume of wood at 12% moisture content.

The qualification of the specific gravity refers to the following classification system (French norms):

very light	:	under 0.50 g/cm³
light	:	0.50 to 0.65 g/cm³
medium	:	0.65 to 0.80 g/cm³
heavy	:	0.80 to 0.95 g/cm³
very heavy	:	over 0.95 g/cm³

Basic specific gravity

This is the ratio of ovendry weight and volume in the green condition.

Total tangential shrinkage

This is the dimensional variation in width of plain-sawn (tangential) boards from green state to oven-dry conditions expressed as percentages of green dimension.

Total radial shrinkage

This is the dimensional variation in width of quarter-sawn (radial) boards from green state to oven-dry conditions, expressed as percentages of green dimension.

Total volumetric shrinkage

This is the dimensional variation in volume of wood from green state to oven-dry conditions, expressed as a percentage of green dimensions.

Mechanical properties

Modulus of rupture (bending strength)

Modulus of rupture reflects the maximum load-carrying capacity of a member stressed in bending at 12% moisture content, expressed in N/mm².

Modulus of elasticity (Young's modulus)

Modulus of elasticity reflects the resistance to deflection of a member stressed in bending at 12% moisture content, expressed in N/mm².

Maximum crushing strength (compression parallel to the grain)

Maximum crushing strength reflects the maximum load-carrying capacity of a member stressed in compression parallel to the grain at 12% moisture content, expressed in N/mm.

Processing

Sawing

The context is one of a sawmill with a production level that can be qualified as industrial. The sawing process is evaluated on a head saw with a feed rate of 25 to 30 meters per minute, and for a working life of blade of 4 hours. In these conditions, the sawing process is evaluated as easy, difficult or by other terms. If the sawing process is rated as difficult, bandsaws with at least 210 cm diameter wheels must be used, which requires power. The blunting effect of wood, related to the silica content or to the hardness is also mentioned.

Drying

The general drying behaviour of wood is mentioned: drying rate, risks of distortion and checking. These characteristics are helpful to select a drying schedule.

A drying schedule is given for some species.

Machining

The wood processing is placed in the industrial background. The difficulty that can be experienced during machining is related to abrasiveness of wood, its hardness and to the presence of interlocked grain.

If there is no processing problem, the machining is qualified as: *not difficult, good or easy*.

If problems are experienced, special tools must be used (stellite-tipped cutters, or high-speed HSS-type steel cutters, eventually with tungstene-carbide inserted teeth). In this case, the qualification is: *special tool*.

When the grain of timber is interlocked, difficulties may be encountered during the wood processing. It is noted as: *difficulties due to interlocked grain*.

Note: Some timbers contain chemicals that can induce a more or less toxicity effect for users during wood working (sawing, machining), in the form of allergy, skin or mucous membrane irritations, and in some severe cases, of respiratory troubles. The disadvantages can appreciably be avoided by using protective equipment (gloves, masks) and by using efficient dust-exhausters.

Gluing

Practically all timber species can be glued, and the selection of a glue depends on the final utilization (interior, exterior, etc.). In addition it is assumed that normal conditions for preparing wood before gluing are respected: correct moisture content, clean surfaces, uniform spread of glue.

A wood with high density, and a high shrinkage, can cause problems for gluing, especially for laminated process.

The gluing classes used are: *good or difficult*.

Nailing

It is important to know whether a nail is easily driven without any risk of splitting. If the wood splits, preboring is necessary.

The holding capacity of wood is also noted: *good*, *medium* or *poor* holding of nails.

Finishing

If the finishing, i.e. sanding, polishing, varnishing and painting gives acceptable results, it is rated as good.

On the contrary, information is given when a *preliminary filling is necessary*.

Veneering

Theoretically, rotary peeling and slicing are possible for almost every timber if an appropriate heat treatment and an accurate adjustment of the cutting conditions are used.

Species presenting some interest on an industrial level are mentioned.

peeling: the species usually favoured are soft or moderately hard, with cylindrical and defect-free boles to obtain a good yield; the timber must have a good drying behaviour to avoid splitting and distortion of veneers.

slicing: timbers are selected for their specific aesthetic qualities: colour, figure, texture.

Natural durability

Natural durability refers to heartwood only, the sapwood generally having poor durability. The resistance of a wood species to attack by biological agents such as decay fungi, termites, insects and marine borers is described.

This natural durability is assessed according to the following grading system: *very good, good, moderate, poor*.

Treatability

On the basis of laboratory tests the amenability has been rated as follows: *good, moderate, poor*.

Uses

The typical uses of each timber are enumerated. The indicated list should not be considered exhaustive since the timber market around the world is always fluctuating and can favour new uses for timbers. However, the list indicates the type of end-use for which each species is suited.

3. INDEX OF SCIENTIFIC NAMES

	Scientific name and authors	Guyanese name
1	*Abarema jupunba* (Willd.) Britton & Killip	Huruasa
2	*Acosmium praeclarum* (Sandw.) Yakovlev	Blackheart
3	*Alexa imperatricis* (Schomb.) Baillon	Haiariballi
3a	*Alexa leiopetala* Sandw.	Haiariballi
4	*Andira surinamensis* (Bondt) Splitg. ex Pulle	Koraro
4a	*Andira inermis* (Wright) DC.	Koraro
5	*Aniba hypoglauca* Sandw.	Yellow silverballi
6	*Antonia ovata* Pohl	Inyak
7	*Aspidosperma cruentum* Woodson	Shibadan
7a	*Aspidosperma album* (Vahl) Benoist	Shibadan
8	*Aspidosperma vargasii* A. DC.	Currywood
9	*Astronium ulei* Mattick	Bauwaua
10	*Bagassa guianensis* Aublet	Cow-wood
75a	*Buchenavia fanshawei* Exell & Maguire	Fukadi
11	*Calophyllum lucidum* Benth.	Kurahara
12	*Carapa guianensis* Aublet	Crabwood
12a	*Carapa procera* A. DC.	Crabwood
13	*Catostemma commune* Sandw.	Common baromalli
14	*Catostemma fragrans* Benth.	Sand baromalli
14a	*Catostemma altsonii* Sandw.	Baromalli
15	*Cedrela odorata* L.	Red cedar
16	*Chlorocardium rodiei* (Schomb.) Rohwer, Richter & van der Werff	Greenheart
17	*Chrysophyllum pomiferum* (Eyma) Penn.	Limonaballi/Paripiballi
18	*Clathrotropis macrocarpa* Ducke	Aromata
18a	*Clathrotropis brachypetala* (Tul.) Kleinh.	Aromata
19	*Couratari guianensis* Aublet	Wadara
19a	*Couratari gloriosa* Sandw.	Wadara
19b	*Couratari multiflora* (J.E. Smith) Eyma	Smooth-leaf wadara
20	*Dimorphandra conjugata* (Splitg.) Sandw.	Dakama
20a	*Dimorphandra polyandra* Benoist	Huruhurudan
21	*Diplotropis purpurea* (Rich.) Amshoff	Tatabu
22	*Dipteryx odorata* (Aublet) Willd.	Tonka bean
23	*Eperua falcata* Aublet	Soft wallaba
24	*Eperua grandiflora* (Aublet) Benth.	Ituri wallaba
24a	*Eperua jenmanii* Oliver	Ituri wallaba
24b	*Eperua schomburgkiana* Benth.	Ituri wallaba
25	*Eperua rubiginosa* Miq.	Watapa
26	*Eschweilera alata* A.C. Smith	Guave-skin kakaralli

	Scientific name and authors	Guyanese name
27	*Eschweilera decolorans* Sandw.	Smooth-leaf kakaralli
27a	*Eschweilera coriacea* (A. DC.) S. Mori	Smooth-leaf kakaralli
27b	*Eschweilera parviflora* (Aublet) Miers	Fine smooth-leaf kakaralli
27c	*Eschweilera wachenheimii* (Benoist) Sandw.	Fine-leaf kakaralli
28	*Eschweilera sagotiana* Miers	Common black kakaralli
28a	*Eschweilera pedicellata* (L.C.Rich.) S. Mori	Kakaralli
28b	*Eschweilera subglandulosa* (Steud. ex O. Berg) Miers	Black kakaralli
29	*Goupia glabra* Aublet	Kabukalli
30	*Humiria balsamifera* (Aublet) A. St. Hil. var. *balsamifera*	Tauroniro
31	*Hyeronima alchorneoides* Allemão	Suradan
32	*Hymenaea courbaril* L.	Locust
32a	*Hymenaea oblongifolia* Huber	Locust/Simira
33	*Hymenolobium flavum* Kleinh.	Koraroballi
34	*Inga alba* (Sw.) Willd.	Maporokon
35	*Iryanthera lancifolia* Ducke	Kirikaua
35a	*Iryanthera macrophylla* (Benth.) Warb.	Kirikaua
36	*Jacaranda copaia* (Aublet) D. Don	Futui
37	*Laetia procera* (Poeppig) Eichler	Warakairo
38	*Lecythis confertiflora* (A.C. Smith) S. Mori	Wirimiri
39	*Lecythis corrugata* Poit.	Wina
40	*Lecythis zabucajo* Aublet	Monkey pot
41	*Licania alba* (Bernoulli) Cuatr.	Kauta
41a	*Licania laxiflora* Fritsch	Kautaballi
41b	*Licania majuscula* Sagot	Kautaballi
42	*Licaria cannella* (Meisner) Kosterm.	Brown silverballi
43	*Loxopterygium sagotii* Hook.f.	Hububalli
44	*Manilkara bidentata* (A. DC.) Chev.	Bulletwood
45	*Mora excelsa* Benth.	Mora
46	*Mora gonggrijpii* (Kleinh.) Sandw.	Morabukea
47	*Moronobea coccinea* Aublet	Manniballi
48	*Ocotea canaliculata* (Rich.) Mez	White silverballi
48a	*Ocotea glomerata* (Nees) Mez	Kurahara silverballi
48b	*Ocotea oblonga* (Meisner) Mez	Soft kereti
48c	*Ocotea wachenheimii* Benoist	Hard kereti
49	*Ocotea rubra* Mez	Determa
50	*Ocotea tomentella* Sandw.	Baradan
51	*Ormosia coccinea* (Aublet) B.D. Jackson	Barakaro
52	*Ormosia coutinhoi* Ducke	Korokororo
53	*Parahancornia fasciculata* (Lam.) Benoist	Dukali

	Scientific name and authors	Guyanese name
54	*Parinari campestris* Aublet	Burada
54a	*Parinari rodolphii* Huber	Burada
55	*Peltogyne venosa* (Vahl) Benth.	Purpleheart
56	*Platonia insignis* Mart.	Pakuri
57	*Pouteria cuspidata* (A. DC.) Baehni	Kokoritiballi
58	*Pouteria guianensis* Aublet	Asepoko
59	*Pouteria speciosa* (Ducke) Baehni	Suya
60	*Protium decandrum* (Aublet) Marchand	Kurokai
61	*Pterocarpus rohrii* Vahl	Hill corkwood
62	*Quassia simarouba* L.f.	Simarupa
63	*Sacoglottis guianensis* Benth.	Sand dukuria
64	*Schefflera decaphylla* (Seemann) Harms	Blunt-leaf karohoro
65	*Schefflera morototoni* (Aublet) Maguire, Steyerm. & Frodin	Pointed-leaf karohoro
66	*Sclerolobium guianense* Benth.	Kaditiri
66a	*Sclerolobium micropetalum* Ducke	Thin-skin kaditiri
67	*Sterculia rugosa* R. Br.	Rough-leaf maho
67a	*Sterculia pruriens* (Aublet) Schumann	Smooth-leaf maho
68	*Swartzia benthamiana* Miq.	Itikiboroballi
68a	*Swartzia sprucei* Benth.	Itikiboroballi
68b	*Swartzia xanthopetala* Sandw.	Itikiboroballi
69	*Swartzia leiocalycina* Benth.	Wamara
70	*Symphonia globulifera* L.f.	Manni
71	*Tabebuia insignis* (Miq.) Sandw. var. *monophylla* Sandw.	White cedar
72	*Tabebuia serratifolia* (Vahl) Nicholson	Hakia
73	*Talisia squarrosa* Radlk.	Moroballi
74	*Terminalia amazonia* (J.F. Gmelin) Exell	Hill fukadi
75	*Terminalia dichotoma* G. Meyer	Swamp fukadi
75a	*Buchenavia fanshawei* Exell & Maguire	Fukadi
76	*Tetragastris altissima* (Aublet) Swart	Haiawaballi
77	*Trattinickia rhoifolia* Willd.	Ulu
77a	*Trattinickia demerarae* Sandw.	Thick-skin ulu
78	*Vatairea guianensis* Aublet	Arisauro
79	*Virola michelii* Heckel	Hill dalli
80	*Virola surinamensis* (Rolander) Warb.	Swamp dalli
81	*Vitex stahelii* Mold.	Hakiaballi
82	*Vochysia surinamensis* Stafleu	Iteballi
82a	*Vochysia schomburgkii* Warm.	Iteballi
82b	*Vochysia tetraphylla* (G. Meyer) D.C.	Iteballi
83	*Vouacapoua macropetala* Sandw.	Sarebebeballi

4. INDEX OF VERNACULAR AND TRADE NAMES

Names printed in bold refer to the main Guyanese name.
Names printed in italics refer to the international trade name(s).

Vernacular name	**Guyanese name**	**Species number**
Abey	Futui	36
Abey blanco	Huruasa	1
Abiu	Asepoko	58
Abiurana	Limonaballi/Paripiballi	17
Abiurana	Kokoritiballi	57
Abiurana	Asepoko	58
Abiurana arana	Kokoritiballi	57
Abiuranta		*57*
Abonkini	Maporokon	34
Aboonkini	Maporokon	34
Acajou blanc	Simarupa	62
Acajou de Guyane	Red cedar	15
Acana	Bulletwood	44
Acapro	Hakia	72
Acapurana	Koraro	4, 4a
Acapurana	Tatabu	21
Aceituno	Simarupa	62
Achua	Sand dukuria	63
Adarouna	Sand baromalli	14, 14a
Aguacatillo	Kurahara silverballi	48a
Agui	Barakaro	51
Aieoueko	Huruhurudan	20
Aieoueko		*20, 20a*
Aipö	Tonka bean	22
Aji	Tatabu	21
Ajunado	Koraro	4,4a
Akajoeran	Huruhurudan	20
Akayoran	Dakama	20
Aknon	Limonaballi/Paripiballi	17
Akoinsiba	Asepoko	58
Aku	Futui	36
Aku	Simarupa	62
Akurima	Smooth-leaf kakaralli	27
Akuyari	Red cedar	15
Alasoabo	Swamp fukadi	75

Vernacular name	Guyanese name	Species number
Alcornoque	Tatabu	21
Algarrobito	Purpleheart	55
Algarrobo	Locust	32
Alma negra	Aromata	18
Almendrillo	Tonka bean	22
Almendro	Koraro	4a
Almendro	Tonka bean	22
Almendro	Hill fukadi	74
Almendro de Rio	Koraro	4, 4a
Almesclao	Haiawaballi	76
Amapa	Dukali	53
Amapa		*53*
Amapa amargoso	Dukali	53
Amapa branco	Dukali	53
Amapa-rana	Cow-wood	10
Amarante	Purpleheart	55
Amarante		*55*
Amarelo	Cow-wood	10
Amargo	Arisauro	78
Amarillo	Currywood	8
Amarillo	Kurahara silverballi	48a
Amarillo carabazuelo	Hill fukadi	74
Ambay-guazu	Pointed-leaf karohoro	65
Amesclao	Ulu	77, 77a
Amesclao		*77, 77a*
Anangossi	Hill fukadi	74
Anangossiti	Hill fukadi	74
Anani	Manni	70
Anani da terra firme	Manniballi	47
Anaura	Kautaballi	41, 41a, 41b
Andira	Koraro	4, 4a
Andira uchi	Koraro	4, 4a
Andiroba	Crabwood	12
Andiroba		*12, 12a*
Andirobeira	Crabwood	12
Angelim		*33*
Angelim	Arisauro	78
Angelim amargosa	Arisauro	78
Angelim fraco	Huruasa	1
Angelim vermelho	Koraro	4, 4a
Angelin	Koraro	4, 4a
Angelin		*4, 4a*
Angelino	Huruasa	1

Vernacular name	Guyanese name	Species number
Angouchi	Hill fukadi	74
Angouchy	Swamp fukadi	75
Anjama	Huruhurudan	20
Anonilla	Pointed-leaf karohoro	65
Apa	Soft wallaba	23
Apa	Ituri wallaba	24, 24a
Apa	Watapa	25
Apazeiro	Soft wallaba	23
Apazeiro	Ituri wallaba	24, 24a
Apazeiro	Watapa	25
Apijo	Warakairo	37
Apokonion	Maporokon	34
Arabisco	Futui	36
Araracanga	Shibadan	7a
Araracanga		*7a*
Aracuy	Arisauro	78
Arakaka	Arisauro	78
Araracanga	Shibadan	7a
Ararama	Kaditiri	66
Araurama	Kaditiri	66, 66a
Arawnig	Hakia	72
Arenillo	Koraro	4a
Arenillo	Tatabu	21
Aricurana	Suradan	31
Arisauro		**78**
Arisauro		*78*
Arisoeroe	Arisauro	78
Aroematta	Aromata	18a
Aromata		**18, 18a**
Aromata		*18, 18a*
Aruain	Hakia	72
Asau	Haiawaballi	76
Asepoko		**58**
Asepoko		*58*
Assao blanc	Huruasa	1
Atoreb	Red cedar	15
Atoritan	Koraroballi	33
Aupar	Hububalli	43
Awaloe-pisi	Ulu	77, 77a
Awapa	Soft wallaba	23
Awartu	Wamara	69
Axua	Sand dukuria	63
Azufre	Manni	70

Vernacular name	Guyanese name	Species number
Baaka	Determa	49
Baaka apici	Kurahara silverballi	48a
Baaka kiabici	Tatabu	21
Baakalaka	Smooth-leaf kakaralli	27, 27a
Baakalaka	Common black kakaralli	28, 28a
Baboen	Hill dalli	79
Baboen		*79*
Baboen	Swamp dalli	80
Baboen		*80*
Baboen wallaba	Ituri wallaba	24
Baboonwood	Swamp dalli	80
Bacuri	Pakuri	56
Bacuri		*56*
Bacuri-acu	Pakuri	56
Bacuri de anta	Manniballi	47
Bacury-guazu	Pakuri	56
Bacuxiuba	Pakuri	56
Bagaceira	Cow-wood	10
Bagasse	Cow-wood	10
Baikaaki	Smooth-leaf kakaralli	27, 27a
Baikaaki	Common black kakaralli	28, 28a
Bakoeri	Pakuri	56
Balata	Bulletwood	44
Balata burue	Bulletwood	44
Balata franc	Bulletwood	44
Balata gomme	Bulletwood	44
Balata jaune d'oeuf	Limonaballi/Paripiballi	17
Balata rouge	Bulletwood	44
Balata singe rouge	Kokoritiballi	57
Balibon	Smooth-leaf kakaralli	27, 27a
Balibon	Common black kakaralli	28, 28a
Banak	Swamp dalli	80
Baradan		**50**
Baradan		*50*
Barakaro		**51**
Baraman	Common baromalli	13
Baramanni	Common baromalli	13
Baramanni	Sand baromalli	14, 14a
Barbasco	Itikiboroballi	68b
Barbosquillo	Koraro	4a
Barillo	Manni	70
Bario	Manni	70
Barmani	Sand baromalli	14

Vernacular name	Guyanese name	Species number
Baromalli	Common baromalli	13
Baromalli		*13*
Baromalli		**14a**
Baromalli		*14, 14a*
Basra bolletrie	Tauroniro	30
Bastard bulletwood	Tauroniro	30
Bastard kabukalli	Warakairo	37
Bastard kokoritiballi	Kokoritiballi	57
Bastard kurokai	Ulu	77
Bastard mahogany	Crabwood	12
Bastard purpleheart	Bauwaua	9
Bat seed	Koraro	4, 4a
Bauwaua		9
Bauwaua		*9*
Bebe		*61*
Becuiba	Hill dalli	79
Beeberoe	Greenheart	16
Beefwood	Bulletwood	44
Behoerada	Burada	54
Belbarbre	Mora	45
Beri oede wallaba	Soft wallaba	23
Bibiro	Greenheart	16
Bibiru	Greenheart	16
Bicuhyba	Swamp dalli	80
Bijlhout	Soft wallaba	23
Bijlhout	Ituri wallaba	24
Bijlhout	Watapa	25
Billy Webb	Blackheart	2
Bintoela	Kaditiri	66
Bioudou	Soft wallaba	23
Bioudou	Ituri wallaba	24
Bioudou	Watapa	25
Bitter ash	Simarupa	62
Black kakaralli		**28b**
Black kakaralli		*28, 28a, 28b*
Blackheart		**2**
Blackheart		*2*
Blackheart	Aromata	18a
Blakaberi	Tauroniro	30
Blaka kabisi	Tatabu	21
Blunt-leaf karohoro		**64**
Boarwood	Manni	70
Boes'amandra	Swamp fukadi	75

Vernacular name	Guyanese name	Species number
Bofroe-oedoe	Sand dukuria	63
Bogamani	Swamp dalli	80
Bois bande	Burada	54
Bois blanc	Inyak	6
Bois blanchet	White cedar	71
Bois canelle	Brown silverballi	42
Bois cassave	Inyak	6
Bois gaulette	Kautaballi	41b
Bois Jacquot	Warakairo	37
Bois macaque	Huruasa	1
Bois macaque de banc de sable	Huruasa	1
Bois macaye	Shibadan	7a
Bois Marie	Warakairo	37
Bois pagode	Maporokon	34
Bois pian	Futui	36
Bois rouge	Tauroniro	30
Bois sabre	Aromata	18
Bois sabre	Soft wallaba	23
Bois violet	Purpleheart	55
Boiusse	Korokororo	52
Boiussu	Korokororo	52
Bolletrie	Bulletwood	44
Borracho	Pointed-leaf karohoro	65
Bosamandel	Swamp fukadi	75
Bouchi mouloumba	Hill dalli	79
Bougouni	Maporokon	34
Brea amarilla	Manni	70
Brea-caspi	Manni	70
Breu	Kurokai	60
Breu grande	Haiawaballi	76
Breu manga	Haiawaballi	76
Breu preto	Haiawaballi	76
Broad-leaved burada	Burada	54
Brown ebony	Wamara	69
Brown silverballi		**42**
Brown silverballi		*42*
Bucare	Soft wallaba	23
Buckwax tree	Manni	70
Bu(hu)rada	Burada	54
Bulletwood		**44**
Bully tree	Bulletwood	44
Bullywood	Hill fukadi	74
Bunzquillo	Maporokon	34

Vernacular name	Guyanese name	Species number
Burada		**54,54a**
Burada		*54, 54a*
Cabary	Aromata	18
Cabbage angelin	Koraro	4a
Cabullo	Wina	39
Cachaceiro	Kabukalli	29
Cachimbo	Wadara	19
Cafetero	Pointed-leaf karohoro	65
Caguairan	Locust	32
Caimite cimarron	Warakairo	37
Caimitillo	Kokoritiballi	57
Caimito	Asepoko	58
Caimito morado	Asepoko	58
Camaticaro	Swamp dalli	80
Canadi	Manni	70
Canaguate	Hakia	72
Canari macaque	Wina	39
Canari macaque	Monkey pot	40
Canasposo	Itikiboroballi	68b
Candlewood	Burada	54
Candlewood	Moroballi	73
Canelo		*48b, 48c*
Canelo amarillo	Kurahara silverballi	48a
Canshan	Hill fukadi	74
Capa de tabaco	Wadara	19
Capricornia	Kabukalli	29
Capurillo	Limonaballi/Paripiballi	17
Carapa	Crabwood	12, 12a
Carapa	Crabwood	12
Carapa rouge	Crabwood	12, 12a
Carbonero	Huruasa	1
Cargamento	Suradan	31
Carne asada	Suradan	31
Carne asada	Moroballi	73
Caroba	Futui	36
Caroba do mato	Futui	36
Carrizalero	Asepoko	58
Casaco	Suradan	31
Castanha sapucala	Monkey pot	40
Castaño	Smooth-leaf maho	67a
Cebo	Swamp dalli	80
Ceder	Red cedar	15
Cedrat	Red cedar	15

Vernacular name	Guyanese name	Species number
Cedre blanc	White cedar	71
Cedre canelle	Brown silverballi	42
Cedre gris	Soft kereti	48b, 48c
Cedre noir	Kurahara silverballi	48a
Cedro	Red cedar	15
Cedro		*15*
Cedro amargo	Simarupa	62
Cedro bateo	Crabwood	12
Cedro blanco	Simarupa	62
Cedro macho	Crabwood	12
Cencerro	Blackheart	2
Chacte	Blackheart	2
Chakte	Blackheart	2
Chaliviande	Swamp dalli	80
Champanha	Tonka bean	22
Chanul	Tauroniro	30
Chanul		*30*
Chaquiro	Kabukalli	29
Charapilla	Tonka bean	22
Chicha	Rough-leaf maho	67, 67a
Chicha brava	Smooth-leaf maho	67a
Chicharra caspi	Futui	36
Chicharro	Hill fukadi	74
Chichipate	Blackheart	2
Chigo	Koraro	4, 4a
Chingale	Futui	36
Chiriuana	Simarupa	62
Chontaquiro	Tatabu	21
Chuponcillo	Kokoritiballi	57
Chuya	Suya	59
Cigarbox	Red cedar	15
Clubwood	Wamara	69
Cochun	Hill fukadi	74
Coco cabeyo	Wadara	19
Coco de mono	Monkey pot	40
Coeurs dehors	Tatabu	21
Coffee mortar	Hill fukadi	74
Coffee mortar	Swamp fukadi	75
Cogwood	Greenheart	16
Cokerwood	Swamp fukadi	75
Common asepoko	Asepoko	58
Common baromalli		**13**
Common black kakaralli		**28**

Vernacular name	Guyanese name	Species number
Common kurokai	Kurokai	60
Congo	Koraro	4a
Congrio	Tatabu	21
Congrio	Kaditiri	66
Congrio blanco	Kabukalli	29
Conigrio	Itikiboroballi	68b
Copaia	Futui	36
Copal	Locust	32, 32a
Copal	Kurokai	60
Copalier	Locust	32
Copinol	Locust	32, 32a
Copiuva	Kabukalli	29
Corkwood	Hill corkwood	61
Corobore	Locust	32
Coronobo	Manniballi	47
Cotoperis	Moroballi	73
Cotuplis	Moroballi	73
Couatari	Wadara	19
Countaballi	Kautaballi	41, 41b
Counter	Kautaballi	41
Courali	White cedar	71
Courbaril	Locust	32
Courbaril		*32, 32a*
Courouitaballi	Kokoritiballi	57
Cow-wood		**10**
Coyote	Blackheart	2
Crabwood		**12, 12a**
Crabwood		*12, 12a*
Crappo	Crabwood	12, 12a
Crook	Haiariballi	3, 3a
Crook	Korokororo	52
Cuajillo	Warakairo	37
Cuajo	Swamp dalli	80
Cuangare	Swamp dalli	80
Cuapinol	Locust	32
Cuchi parutu yura	Hill corkwood	61
Cuilimbuco	Koraro	4a
Cumala	Swamp dalli	80
Cumaru	Tonka bean	22
Cumaru		*22*
Cumate	Sand dukuria	63
Cupay	Futui	36
Cupiuba	Kabukalli	29

Vernacular name	Guyanese name	Species number
Fijnbladige sopo-oedoe	Huruasa	1
Fine-leaf kakaralli		**27c**
Fine-leaf wadara	Wadara	19a
Fine-smooth-leaf kakaralli		**27b**
Firiberoebana	Barakaro	51
Flambeau rouge	Sand baromalli	14
Foengoe	Kautaballi	41, 41a, 41b
Foengoe	Burada	54
Foetei	Sand baromalli	14
Foetei	Futui	36
Fongouti koko	Burada	54, 54a
Fukadi		**75**
Fukadi		*75, 75a*
Futi	Futui	36
Futui		**36**
Gaiac de Cayenne	Tonka bean	22
Gambouchi	Ulu	77
Garay	Suradan	31
Garrote	Cow-wood	10
Gaulette blanc	Burada	54
Geelhart	Pakuri	56
Gele kabbes	Arisauro	78
Geli kabissi	Arisauro	78
Ginger gale	Yellow silverballi	5
Ginja-hoedoe	Hill fukadi	74
Gobaja	Futui	36
Gobaja		*36*
Goebaja	Futui	36
Goue-goue	Itikiboroballi	68
Goupi	Kabukalli	29
Goupie	Kabukalli	29
Grandmoni	Ulu	77
Greenheart		**16**
Greenheart		*16*
Gri-gri	Kautaballi	41b
Grignon fou	Iteballi	82, 82b
Grignon franc	Determa	49
Gris-gris blanc	Burada	54
Groenhart	Hakia	72
Guaba	Hill fukadi	74
Guabillo	Kaditiri	66
Guacharaco	Wina	39
Gualanda	Futui	36

Vernacular name	Guyanese name	Species number
Guamillo	Kaditiri	66
Guamo	Maporokon	34
Guapinol	Locust	32
Guarabu	Purpleheart	55
Guaray	Burada	54
Guarumo macho	Pointed-leaf karohoro	65
Guashi	Simarupa	62
Guava-skin kakaralli		**26**
Guava-skin kakaralli		*26*
Guayabillo	Hill fukadi	74
Guayabo	Fukadi	75a
Guayacan	Hakia	72
Guingamadou	Swamp dalli	80
Guitarrero	Pointed-leaf karohoro	65
Gullikiabicci	Koraroballi	33
Guyabo leon	Hill fukadi	74
Haiari		*3, 3a*
Haiari	Korokororo	52
Haiariballi		**3, 3a**
Haiawaballi		**76**
Hakia		**72**
Hakiaballi		**81**
Hakiaballi		*81*
Haimara-kushi	Limonaballi/Paripiballi	17
Hard kereti		**48c**
Harde zwarte pisi	Kurahara silverballi	48a
Hariraro shiruaballi	White silverballi	48
Hariroroe	Inyak	6
Heburu	White silverballi	48
Hierrito	Kautaballi	41, 41a, 41b
Higueroton	Pointed-leaf karohoro	65
Hill corkwood		**61**
Hill dalli		**79**
Hill fukadi		**74**
Hill iteballi	Iteballi	82
Hodeme	Moroballi	73
Hoeboeballi	Hububalli	43
Hog gum	Manni	70
Hoogland baboen	Hill dalli	79
Hoogland barklak	Smooth-leaf kakaralli	27, 27a
Hoogland barklak	Kakaralli	28a
Hoogland bebe	Hill corkwood	61
Hoogland kokrikie	Barakaro	51

Vernacular name	Guyanese name	Species number
Horowassa	Huruasa	1
Horse-eye	Korokororo	52
Houmiri	Tauroniro	30
Huasai-caspi	Tatabu	21
Hububalli		**43**
Hububalli		*43*
Huesito	Blackheart	2
Huriki	Sand dukuria	63
Huruasa		**1**
Huruasa		*1*
Huruhurudan		**20a**
Icanu	Inyak	6
Ileng	White silverballi	48
Imbirema	Wadara	19
Incienso	Kurokai	60
Inga	Maporokon	34
Inga		*34*
Ingipipa	Wadara	19, 19a, 19b
Inguipipa	Wadara	19, 19a, 19b
Inkassa	Arisauro	78
Inyak		**6**
Inyak		*6*
Ipe	Hakia	72
Ipe		*72*
Ipoentrie	Inyak	6
Iriar	Bulletwood	44
Irikwa	Hill dalli	79
Irikwa	Swamp dalli	80
Irimariye	Wadara	19a
Ironwood	Wamara	69
Ironwood	Hakia	72
Ishtapi	Futui	36
Itauba branca	Greenheart	16
Iteballi		**82, 82a, 82b**
Iteballi		*82, 82a, 82b*
Itiki boeroeballi	Itikiboroballi	68
Itikiboro	Hill corkwood	61
Itikiboroballi		**68, 68a, 68b**
Ituri wallaba		**24, 24a, 24b**
Ivira	Smooth-leaf maho	67a
Jacaranda	Futui	36
Jamboka	Asepoko	58
Jan Snijder	Asepoko	58

Vernacular name	Guyanese name	Species number
Jatahy	Locust	32
Jatai	Locust	32, 32a
Jatoba	Locust	32, 32a
Jatoba		*32, 32a*
Jaune d'oeuf	Asepoko	58
Jawahedan	Cow-wood	10
Jawaledan	Kaditiri	66
Jetoeri wallaba	Watapa	25
Jigua amarillo	Kurahara silverballi	48a
Johoto	White cedar	71
Juan colorado	Asepoko	58
Jumbi bead tree	Barakaro	51
Jutai	Locust	32, 32a
Kaapa	Crabwood	12, 12a
Kabiuk	Kabukalli	29
Kabukalli		**29**
Kabukalli		*29*
Kaditiri		**66, 66a**
Kaditiri		*66, 66a*
Kaiman-oedoe	Warakairo	37
Kaiman oudou	Warakairo	37
Kajoewaballii	Sand baromalli	14
Kakaralli	Guava-skin kakaralli	26
Kakaralli		**28a**
Kalebashout	Hill fukadi	74
Kalili	Kaditiri	66
Kalioe oelemaliti	Wadara	19, 19a, 19b
Kamaragwa	Haiawaballi	76
Kamarai	Brown silverballi	42
Kaneelhart	Brown silverballi	42
Kaneelhart		*42*
Kaneel-pisie	Brown silverballi	42
Kanhoedoe	Cow-wood	10
Kanirip	Currywood	8
Kapai	Haiariballi	3a
Kara	Rough-leaf maho	67, 67a
Karaba	Crabwood	12, 12a
Karaba	Moroballi	73
Karababalli	Moroballi	73
Karamanni	Manni	70
Karapai	Crabwood	12, 12a
Karapa-yek	Crabwood	12, 12a
Karawai	Purpleheart	55

Vernacular name	Guyanese name	Species number
Karimora	Moroballi	73
Karohoro	Blunt-leaf karohoro	64
Karohoro	Pointed-leaf karohoro	65
Kasabahoedoe	Inyak	6
Kasaba oudou	Inyak	6
Kasave	Inyak	6
Kasavehout	Pointed-leaf karohoro	65
Kaserena	Koraroballi	33
Kassavehout	Blunt-leaf karohoro	64
Kata	Kaditiri	66, 66a
Katama	Common baromalli	13
Katamana	Sand baromalli	14
Katje	Aromata	18a
Katoelimia	Tonka bean	22
Katowar	Cow-wood	10
Kauada	Kautaballi	41, 41b
Kaudanaro	Kautaballi	41
Kauta		**41a**
Kauta		*41a*
Kautaballi		**41, 41b**
Kautaballi		*41, 41b*
Kauwi	Aromata	18
Kaw-oedoe	Cow-wood	10
Kaw oudou	Cow-wood	10
Kawanari	Locust	32
Kawioi	Yellow silverballi	5
Kereti		*48b, 48c*
Kharemero shiruaballi	Brown silverballi	42
Kirikaua		**35, 35a**
Kirikaua		*35, 35a*
Klaipio	Huruasa	1
Kleipjo	Huruasa	1
Koatoi	Haiariballi	3
Kobe	Smooth-leaf maho	67a
Kobe		*67, 67a*
Kobero	Bulletwood	44
Koebesini	Burada	54
Koemaroe	Tonka bean	22
Koerahara	Kurahara	11
Koerli	Kurahara	11
Koko	Kautaballi	41, 41a, 41b
Kokoritiballi		**57**
Kokriki	Barakaro	51

Vernacular name	Guyanese name	Species number
Konatopo	Tatabu	21
Konawadranup	Hakia	72
Kooelpialli	Hububalli	43
Kopaia	Futui	36
Koperi	Red cedar	15
Kopie	Kabukalli	29
Kopie		*29*
Kopö	Kurahara	11
Koraro		**4, 4a**
Koraroballi		**33**
Korero	Aromata	18, 18a
Koroboreli	Purpleheart	55
Korokororo		**52**
Koron	Sand baromalli	14
Korongpinbiu	Korokororo	52
Kotik	Koraroballi	33
Kötö	Haiariballi	3a
Kotore	Sand dukuria	63
Kouali	Iteballi	82, 82b
Kouanda	Smooth-leaf kakaralli	27, 27a
Kouanda	Common black kakaralli	28 ,28a
Kouatapatou	Monkey pot	40
Krapabosi	Tonka bean	22
Krappa	Crabwood	12, 12a
Kromanti kopi	Shibadan	7a
Kuiship	Futui	36
Kukwi	Purpleheart	55
Kumaiteka	Wina	39
Kumaru	Tonka bean	22
Kume	Monkey pot	40
Kupisini	Burada	54
Kupiye	Kabukalli	29
Kurahara		**11**
Kurahara silverballi		**48a**
Kurana	Red cedar	15
Kurang	Maporokon	34
Kurassini	Kokoritiballi	57
Kurero silverballi	Yellow silverballi	5
Kurokai		**60**
Kurokai		*60*
Kut	Greenheart	16
Kwai	Hill fukadi	74
Kwari	Maporokon	34

Vernacular name	Guyanese name	Species number
Kwari	Iteballi	82
Kwari		*82, 82a, 82b*
Kwariye	Maporokon	34
Kwatapatoe	Monkey pot	40
Kwateri	Smooth-leaf kakaralli	27
Kwateri	Common black kakaralli	28
Kwatpain	Huruasa	1
Kwatru	Smooth-leaf kakaralli	27
Kwatru	Common black kakaralli	28
Kwatupana	Huruasa	1
Kwikpa	Limonaballi/Paripiballi	17
Kwipari	Hububaliti	43
Kwipariye	Hububaliti	43
La Saint Jean	Blunt-leaf karohoro	64
La Saint Jean	Pointed-leaf karohoro	65
Lacre montanera	Iteballi	82
Lapacho	Hakia	72
Lapacho		*72*
Lapacho negro	Hakia	72
Laurel	White silverballi	48, 48a, 48b, 48c
Laurel	Kurahara silverballi	48a
Laurier	White silverballi	48, 48a, 48b, 48c
Lauro chumbo	Brown silverballi	42
Lebi kiabici	Barakaro	51
Lebi kiabici	Korokororo	52
Lebi-sali	Haiawaballi	76
Lebioueko	Maporokon	34
Leche amarilla	Manni	70
Liadiadan koleroe	Koraroballi	33
Liaroekakaralli	Wina	39
Licahout	Inyak	6
Licano apici	Kurahara silverballi	48a
Lika oedoe	Inyak	6
Limonaballi/Paripiballi		**17**
Limonaballi		*17*
Loboashou	Warakairo	37
Locus	Locust	32
Locust		**32, 32a**
Loka	Locust	32, 32a
Loksi	Locust	32
Louro	White silverballi	48, 48a
Louro gamela	Determa	49
Louro vermelho	Determa	49

Vernacular name	Guyanese name	Species number
Louro vermelho		*49*
Lucky seed	Barakaro	51
Maats	Koraro	4
Mabinanero	Koraroballi	33
Macaranduba	Bulletwood	44
Macaranduba		*44*
Machare	Manni	70
Magui	Arisauro	78
Mahaicaballi	Burada	54
Maho	Common black kakaralli	28, 28a
Maho	Rough-leaf maho	67, 67a
Mahot blanc	Wirimiri	38
Mahot cochon	Smooth-leaf maho	67a
Mahot noir	Smooth-leaf kakaralli	27a
Mahot noir	Kakaralli	28a
Mahot rouge	Wina	39
Mahou	Smooth-leaf kakaralli	27a
Mahou	Common black kakaralli	28, 28a
Maitakin	Manni	70
Maiuarai	Kautaballi	41
Majagua	Rough-leaf maho	67, 67a
Makarai	Burada	54
Makka kabes	Koraroballi	33
Makka krappa	Moroballi	73
Manbarklak	Smooth-leaf kakaralli	27a
Manbarklak	Kakaralli	28a, 28b
Mandiocai	Pointed-leaf karohoro	65
Mangue	Manni	70
Mani	Manni	70
Mani		*70*
Manil	Manni	70
Manil marecage	Manni	70
Manil montagne	Manniballi	47
Manil peou	Manniballi	47
Manioudou	Manni	70
Manni		**70**
Manniballi		**47**
Manniballi		*47*
Mapa	Dukali	53
Maparajuba	Bulletwood	44
Maparana	Shibadan	7, 7a
Maporokon		**34**
Maquilla	Koraro	4a

Vernacular name	Guyanese name	Species number
Marako	Purpleheart	55
Marapasmukri	Asepoko	58
Marawaro	Kurahara	11
Marbuk	Kirikaua	35, 35a
Marcelo	Warakairo	37
Marimari	Wadara	19a
Marmite de singe	Monkey pot	40
Marupa	Manniballi	47
Marupa	Simarupa	62
Marupa		*62*
Marupa falso	Futui	36
Marupauba falso	Pointed-leaf karohoro	65
Maruwa	Kurokai	60
Masabalo	Crabwood	12
Mascare	Suradan	31
Massaranduba	Bulletwood	44
Mataaki	Manni	70
Mataki	Manni	70
Matakkie	Manniballi	47
Mata-mata	Smooth-leaf kakaralli	27a, 27b
Mata-mata	Common black kakaralli	28, 28a
Matamata	Wina	39
Matamata preto	Fine smooth-leaf kakaralli	27b
Matamata preto	Common black kakaralli	28a
Matapalo	Kaditiri	66
Matatauba	Pointed-leaf karohoro	65
Matazama	Pakuri	56
Matchwood	Blunt-leaf karohoro	64
Matchwood	Pointed-leaf karohoro	65
Matora	Hill fukadi	74
Matou mouloumba	Hill dalli	79
Matouni	Pakuri	56
Mattoe	White cedar	71
Matzingua	Huruasa	1
Mayaro poui	Aromata	18a
Mazabalo	Crabwood	12
Melassiehoedoe	Inyak	6
Merecurillo	Burada	54, 54a
Merendiba branca	Hill fukadi	74
Meri	Tauroniro	30
Moca	Koraro	4a
Moelawa	Warakairo	37
Moire	Locust	32

Vernacular name	Guyanese name	Species number
Murewa	Warakairo	37
Mutushi	Hill corkwood	61
Mututuy da terra firma	Itikiboroballi	68
Mutuwali	Aromata	18, 18a
Naharu	Swamp fukadi	75
Nancito	Suradan	31
Napo	Suradan	31
Naranjo	Hill fukadi	74
Nargusta	Hill fukadi	74
Nargusta		*74*
Nazareno	Locust	32
Nazareno	Purpleheart	55
Nekoe oedoe	Korokororo	52
Neko oudou aguitin	Korokororo	52
N'Gobaya	Futui	36
Nina	Tauroniro	30
Nispero	Bulletwood	44
Not	Locust	32
Nuanamo	Swamp dalli	80
Odon	Cow-wood	10
Odoun	Cow-wood	10
Oemanbarklak	Wina	39
Ogoru	Tatabu	21
Okoromai	Guava-skin kakaralli	26
Okraprabu	Itikiboroballi	68
Okro-oedoe	Smooth-leaf maho	67a
Olgoi	Tatabu	21
Olivo negrito	Simarupa	62
Ollo	Ulu	77, 77a
Oloroso	Tauroniro	30
Onotillo	Hububalli	43
Ormata	Hububalli	43
Örükorong	Huruasa	1
Orumo-macho	Pointed-leaf karohoro	65
Otivo	Swamp dalli	80
Otobo	Swamp dalli	80
Paardevleeshout	Bulletwood	44
Pacuare	Kaditiri	66
Pacuru	Pakuri	56
Pajura	Suya	59
Pajura de Obidos	Suya	59
Pakoeli	Pakuri	56
Pakoueli	Pakuri	56

Vernacular name	Guyanese name	Species number
Paku	Common baromalli	13
Paku	Sand baromalli	14, 14a
Pakuri		**56**
Pakuri		*56*
Palakoea	Mora	45
Paletuvier jaune	Manni	70
Pallewie	Watapa	25
Palo de buba	Futui	36
Palo de sangre	Hill corkwood	61
Palo de sangre	Swamp dalli	80
Paloeloipio	Inyak	6
Palo machete	Soft wallaba	23
Pamashto	Bulletwood	44
Panacoco blanc	Barakaro	51
Panama	Smooth-leaf maho	67a
Panda	White cedar	71
Panda cedoe	White cedar	71
Pangapanga	Soft wallaba	23
Pantano	Suradan	31
Papakaie kouali	Iteballi	82b
Para-para	Futui	36
Para-para		*36*
Parahyba	Simarupa	62
Paraju	Bulletwood	44
Parakaua	Mora	45
Parakwai	Morabukea	46
Paraman	Manni	70
Parank	Red cedar	15
Paranka	Red cedar	15
Parcouri	Pakuri	56
Parcouri-manil	Manniballi	47
Pardillo amarillo	Hill fukadi	74
Pardillo negro	Hill fukadi	74
Parewe	Soft wallaba	23
Parinari	Burada	54a
Paripiballi/Limonaballi		**17**
Paruru	Sand dukuria	63
Pasa	Futui	36
Pata de danto amarillo	Fukadi	75a
Pata de Gallina	Pointed-leaf karohoro	65
Pau mulato brancho	Hill fukadi	74
Pau d'Arco	Hakia	72
Pau doce	Kokoritiballi	57

Vernacular name	Guyanese name	Species number
Pau marfim		*8*
Pau roxo	Purpleheart	55
Pau sangre	Hill corkwood	61
Pau violeta	Purpleheart	55
Pavito	Futui	36
Pendare	Bulletwood	44
Pendarito	Kokoritiballi	57
Peramancillo	Manni	70
Peto	Mora	45
Phootee	Futui	36
Pi	Pointed-leaf karohoro	65
Picaton	Hububalli	43
Piento-bolletrie	Suradan	31
Pientobolletrie	Kokoritiballi	57
Pientokopie	Warakairo	37
Pilon	Koraro	4, 4a
Pilon	Suradan	31
Pilon		*31*
Pintrie	Hill dalli	79
Piria	Warakairo	37
Pisi	Hard kereti	48c
Pitomba	Moroballi	73
Pizarro	Hill corkwood	61
Platanillo	Pointed-leaf karohoro	65
Pointed-leaf karohoro		**65**
Pökö	Common black kakaralli	28
Polvillo	Hakia	72
Ponsigue montanero	Sand dukuria	63
Pookadi	Hill fukadi	74
Popo-ati	Purpleheart	55
Por	Suya	59
Pörnai	Pointed-leaf karohoro	65
Porokai	Kurokai	60
Pöyak	Asepoko	58
Pracuuba	Mora	45
Preciosa	Brown silverballi	42
Prokonie	Maporokon	34
Prukoi	Common black kakaralli	28
Puenga	Manni	70
Puete	Hill fukadi	74
Puire	Sand dukuria	63
Puna	Pointed-leaf karohoro	65
Punte	Limonaballi/Paripiballi	17

Vernacular name	Guyanese name	Species number
Sangre		*61*
Sangre	Swamp dalli	80
Sangrillo	Hill corkwood	61
Sangrito	Hill corkwood	61
Sangue-de-bio	Suradan	31
Sani caspi	Warakairo	37
Santa Maria		*11*
Sapadilla	Bulletwood	44
Sapangapanga	Aromata	18
Sapino	Kabukalli	29
Sapucaia	Monkey pot	40
Sapucaia		*40*
Sapupira	Tatabu	21
Saraurai	Rough-leaf maho	67, 67a
Sarebebeballi		**83**
Sarebebeballi		*83*
Sarrapia	Tonka bean	22
Sarrapio montanero	Koraro	4, 4a
Sawariskin silverballi	White silverballi	48
Sebo	Swamp dalli	80
Sedre	Red cedar	15
Sekerau	Smooth-leaf maho	67a
Serena	Kurahara	11
Shempo	Swamp dalli	80
Shibadan		**7, 7a**
Shibadan		*7, 7a*
Shibadan	Currywood	8
Shihuahuaco amarillo	Tonka bean	22
Shiraip	Wamara	69
Shirima	Simarupa	62
Shiritikan	Currywood	8
Simana	Common baromalli	13
Simana	Sand baromalli	14
Simarouba	Simarupa	62
Simaruba	Simarupa	62
Simaruba		*62*
Simarupa		**62**
Simere	Simarupa	62
Simia chimi	Swamp fukadi	75
Simiri	Locust	32a
Sipiri	Greenheart	16
Sipiroe	Greenheart	16
Sipu	Greenheart	16

Vernacular name	Guyanese name	Species number
Slangenhout	Hububalli	43
Slangenhout		*43*
Smooth-leaf kakaralli		**27, 27a**
Smooth-leaf kakaralli		*27, 27a, 27b, 27c*
Smooth-leaf maho		**67a**
Smooth-leaf wadara		**19b**
Soapwood	Huruasa	1
Soemaroeba	Simarupa	62
Soewana	Kirikaua	35
Soft kereti		**48b**
Soft wallaba		**23**
Stinking toe	Locust	32
Stinkwood	Kabukalli	29
Suchi amarillo	Hill fukadi	74
Sucupira	Tatabu	21
Sucupira		*21*
Sun-sun	Pointed-leaf karohoro	65
Suntuch	Pointed-leaf karohoro	65
Supai yahuar huiqui	Hill corkwood	61
Suradan		**31**
Suradanni	Suradan	31
Suriname snakewood	Hububalli	43
Suya		**59**
Suya		*59*
Swamp baromalli	Common baromalli	13
Swamp bloodwood	Hill corkwood	61
Swamp dalli		**80**
Swamp fukadi		**75**
Swamp kirikaua	Kirikaua	35, 35a
Swanna	Kirikaua	35
Tabaca	Aromata	18
Tabaca	Soft wallaba	23
Tabaco	Soft wallaba	23
Tabaco	Ituri wallaba	24a
Tabaco	Watapa	25
Tabari	Wadara	19
Tabari	Wina	39
Tabebuia		*72*
Tachi	Kaditiri	66
Tachy	Kaditiri	66
Tahuari negro	Hakia	72
Tamad	Common black kakaralli	28
Tamanokware	Inyak	6

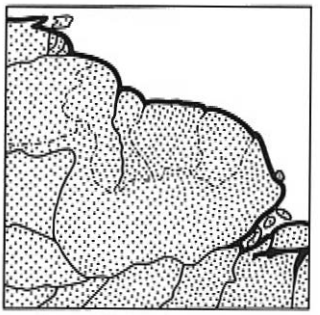
Vernacular name	Guyanese name	Species number
Tamanqueira	Simarupa	62
Tamarotan	Hill fukadi	74
Tamoene	Wina	39
Tampipio	Wadara	19
Tananeo	Purpleheart	55
Tangare	Crabwood	12
Tapaljacote	Moroballi	73
Tarco	Futui	36
Tatabu		**21**
Tatajuba	Cow-wood	10
Tatajuba		*10*
Tauaranru	Tauroniro	30
Tauari	Wadara	19, 19b
Tauari		*19, 19a, 19b*
Tauroniro		**30**
Tawanonero	Tauroniro	30
Tekröma	Guava-skin kakaralli	26
Temare	Kokoritiballi	57
Tento	Barakaro	51
Tento		*51*
Tento	Korokororo	52
Tento		*52*
Teteroma	Determa	49
Teteruma	Determa	49
Thick-skin kaditiri	Kaditiri	66
Thick-skin ulu		**77a**
Thin-skin kaditiri		**66a**
Thin-skin ulu	Ulu	77
Thoeraroe	Inyak	6
Tiestigo	Moroballi	73
Timbo pau	Aromata	18
Timbo rana	Aromata	18
Tinajito	Monkey pot	40
Tinchi	Hard kereti	48c
Tingimoni	Haiawaballi	76
Tingimoni	Kurokai	60
Tingimoni	Ulu	77
Tingui apici	Hard kereti	48c
Tinguimoni	Kurokai	60
Tiniari	Brown silverballi	42
Tinto blanco	Futui	36
Tobitoutou	Blunt-leaf karohoro	64
Tobitoutou	Pointed-leaf karohoro	65

Vernacular name	Guyanese name	Species number
Wamara		*69*
Wamkoam	Kaditiri	66, 66a
Wamuk	Burada	54
Wamuku	Burada	54
Wana	Determa	49
Wana		*49*
Wana kouali	Iteballi	82
Wana kwari	Iteballi	82
Wanaka	Korokororo	52
Wane	Determa	49
Wantsun	Kaditiri	66
Wanu	Determa	49
Wapa	Soft wallaba	23
Wapa	Ituri wallaba	24
Wapa	Watapa	25
Wapa courbaril	Ituri wallaba	24
Wapa montagne	Ituri wallaba	24
Wapa rivière	Watapa	25
Warabokkadan	Korokororo	52
Warakairo		**37**
Warakairo		*37*
Warakajaro	Warakairo	37
Warakuri	White cedar	71
Waramai	Kabukalli	29
Waranaka	Wadara	19
Warishi	Swamp dalli	80
Waroekoeli	White cedar	71
Waroes	Swamp dalli	80
Warokorie	White cedar	71
Waruwai	Kurokai	60
Wassiba	Hakia	72
Watafa	Watapa	25
Watapa		**25**
Water wallaba	Ituri wallaba	24b
Water wallaba	Watapa	25
Watra bebe	Hill corkwood	61
Watra kwari	Iteballi	82b
Watschir	Kurahara	11
Watuwai	Warakairo	37
Wayama	Ulu	77
We	Swamp dalli	80
Weputana	Kirikaua	35a
Weti apici	Soft kereti	48b

Vernacular name	Guyanese name	Species number
Zabucaio	Monkey pot	40
Zapan negro	Tatabu	21
Zapatero	Purpleheart	55
Zaputi	Manni	70
Zwamp panta	White cedar	71
Zwarte kabbes	Tatabu	21

5. DESCRIPTION BY SPECIES

1 *Abarema jupunba* (Willd.) Britton & Killip — **Huruasa**

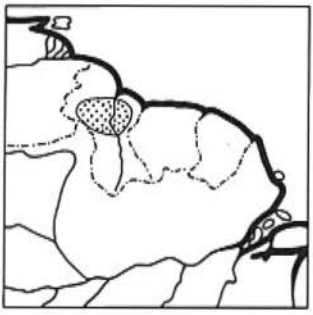


1. *Abarema jupunba*

Synonym	:	*Pithecellobium jupunba* (Willd.) Urban
Family	:	Leguminosae (Mimosoideae)
Vernacular names		
Guyana	:	Huruasa, Klaipio, Kwatpain, Kwatupana, Örükorong, Soapwood
Brazil	:	Angelim fraco
Colombia	:	Abey blanco, Angelino, Carbonero
Ecuador	:	Matzingua
French Guiana	:	Assao blanc, Bois macaque, Bois macaque de banc de sable
Suriname	:	Fijnbladige sopo-oedoe, Horowassa, Kleipjo
International trade name	:	Huruasa
Distribution	:	Brazil, the Caribbean, Colombia, Ecuador, the Guianas and Venezuela
Tree description		
Length of the bole	:	height of tree: 20-30m
Diameter	:	0.35-0.85m
Shape of the log	:	base swollen or with low buttresses
Wood description		
Sapwood	:	distinct, white to yellowish white
Heartwood	:	pale brown to red-brown
Grain	:	variable, from straight to interlocked
Texture	:	rather fine to moderately coarse
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.05
Air-dry density at 12% (g/cm^3)	:	0.62
Basic specific gravity	:	0.51
Total tangential shrinkage (%)	:	7.3
Total radial shrinkage (%)	:	4.5
Total volumetric shrinkage (%)	:	12.5

Mechanical properties	
Bending strength at 12% (N/mm²)	102
Modulus of elasticity at 12% (N/mm²)	13770
Crushing strength at 12% (N/mm²)	51
Processing	
Sawing	easy
Drying	fast
Machining	good
Gluing	good
Nailing	good holding of nails
Finishing	good
Veneering	peels well
Natural durability	
Resistance to decay	moderate
Treatability	poor
Uses	furniture; interior trim; veneer; utility plywood; light carpentry

2 *Acosmium praeclarum* (Sandw.) Yakovlev **Blackheart**



2. *Acosmium praeclarum*

Synonym	:	*Sweetia praeclara* Sandw.
Family	:	Leguminosae (Papilionoideae)

This sheet describes the species *Acosmium panamensis* Benth. which is similar to *Acosmium praeclarum* in appearance and technical properties

Vernacular names		
Guyana	:	Blackheart
Belize	:	Billy Webb
Colombia	:	Rejo
Honduras	:	Coyote
Mexico	:	Cencerro, Chacte, Chakte, Chichipate, Huesito
Venezuela	:	Vera de agua
International trade name	:	Blackheart
Distribution	:	Central and North Central Guyana
Tree description		
Length of the bole	:	15-21m; height of tree: up to 35m
Diameter	:	0.4-0.5m
Shape of the log	:	straight and sometimes flattened
Wood description		
Sapwood	:	distinct, yellow-white to light brown
Heartwood	:	(dark) brown
Grain	:	interlocked, roey
Texture	:	medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.00
Basic specific gravity	:	0.79
Total tangential shrinkage (%)	:	3.7
Total radial shrinkage (%)	:	2.4
Total volumetric shrinkage (%)	:	6.1

Mechanical properties

Bending strength (green) (N/mm^2)	:	142
Modulus of elasticity (green) (N/mm^2)	:	15104
Crushing strength (green) (N/mm^2)	:	64

Processing

Drying	:	air-seasons well
Machining	:	good

Natural durability

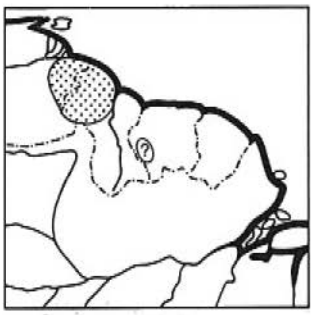
Resistance to decay	:	very good
Resistance to termites	:	very good

Treatability : poor

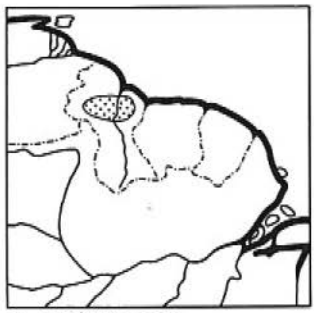
Uses : turnery; heavy construction; carving; posts; furniture; sleepers; veneer; bridges; handles; flooring

3 ***Alexa imperatricis*** (Schomb.) Baillon **Haiariballi**

3a ***Alexa leiopetala*** Sandw. **Haiariballi**



3. *Alexa imperatricis*

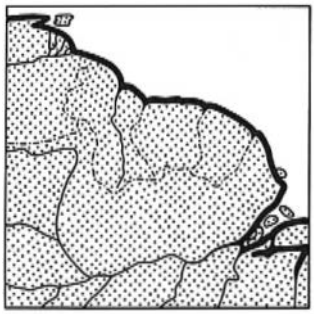


3a. *Alexa leiopetala*

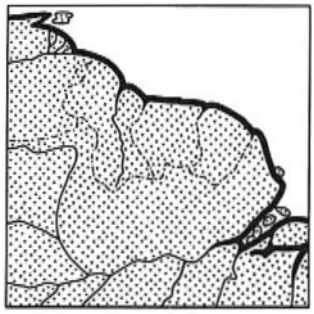
Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Crook, Haiariballi, Kapai, Koatoi, Kötö
International trade name	:	Haiari (3, 3a)
Distribution	:	Brazil, Guyana, Suriname and Venezuela
Tree description		
Length of the bole	:	20-24m; height of tree: may reach 40m
Diameter	:	0.5-0.6m, up to 0.9m
Shape of the log	:	straight, cylindrical; base unbuttressed, somewhat swollen
Wood description		
Sapwood	:	not clearly distinct, light yellow to greyish yellow (7-10cm)
Heartwood	:	brownish yellow, occasionally somewhat darker
Grain	:	generally straight
Texture	:	rather coarse
Technological characteristics		
Physical properties	:	*A. imperatricis*
Air-dry density at 12% (g/cm³)	:	0.51
Basic specific gravity	:	0.46
Total tangential shrinkage (%)	:	8.5
Total radial shrinkage (%)	:	4.0
Total volumetric shrinkage (%)	:	11.7
Mechanical properties		
Bending strength at 12% (N/mm²)	:	73
Modulus of elasticity at 12% (N/mm²)	:	10890
Crushing strength at 12% (N/mm²)	:	39

Processing	
Sawing	easy; logs sometimes split in felling blunting effect: very slight
Drying	difficult U.S. kiln schedule T2-C2 for 25-38 mm (4/4 to 6/4) stock and T2-C1 for 50 mm (8/4) stock or British schedule B (25 mm) marked tendency to collapse; air-drying under cover; the use of high humidities and low temperatures during the early stages of kiln-drying are recommended movement in service large
Machining	easy
Gluing	good
Nailing	good holding of nails
Finishing	good
Veneering	peels and slices well (reported to have rather unfavourable gluing properties to produce into plywood), veneers slow to dry
Natural durability	
Resistance to decay	poor to good
Resistance to termites	poor
Resistance to insects of dry wood	poor
Treatability	good
Uses	interior joinery; furniture; boxes and crates; light carpentry; plywood; veneer; interior trim

4 ***Andira surinamensis*** (Bondt) Splitg. ex Pulle **Koraro**
4a ***Andira inermis*** (Wright) DC. **Koraro**



4. *Andira surinamensis*



4a. *Andira inermis*

Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Bat seed, Koraro, Maats
Bolivia	:	Ajunado
Brazil	:	Acapurana, Almendro de Rio, Andira, Andira uchi, Angelim vermelho
Central America	:	Almendro, Arenillo, Barbosquillo, Cabbage angelin, Cuilimbuco, Moca
Colombia	:	Congo
Ecuador	:	Moton
French Guiana	:	Saint Martin rouge
Mexico	:	Maquilla
Peru	:	Quinillo colorado
Suriname	:	Rode kabbes
Trinidad and Tobago	:	Angelin
Venezuela	:	Chigo, Pilon, Sarrapio montanero
International trade name	:	Angelin (4, 4a)
Distribution	:	Central and Tropical South America, and the Caribbean
Tree description		
Length of the bole	:	25m; height of tree: 40m
Diameter	:	0.6-0.9m, sometimes up to 1.20m
Shape of the log	:	straight, either cylindrical or slightly irregular, base often with adventitious roots
Wood description		
Sapwood	:	distinct, yellow white
Heartwood	:	pink brown to red brown with pale veins (on tangential surface)
Grain	:	straight or interlocked
Texture	:	coarse

Technological characteristics

Physical properties	:	*A. inermis*
Green density (g/cm³)	:	1.20
Air-dry density at 12% (g/cm³)	:	0.87
Basic specific gravity	:	0.78
Total tangential shrinkage (%)	:	7.3
Total radial shrinkage (%)	:	4.7
Total volumetric shrinkage (%)	:	11.7
Mechanical properties		
Bending strength at 12% (N/mm²)	:	143
Modulus of elasticity at 12% (N/mm²)	:	16300
Crushing strength at 12% (N/mm²)	:	74

Processing

Sawing : power required; presence of internal stresses blunting effect: moderate

Drying : no important problems
U.S. kiln schedule T3-D2 for 25-38 mm (4/4 to 6/4) stock or kiln schedule for 41 mm listed below
risks of distortion: slight
risks of checking: slight
movement in service large

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	40	88
50	46	42	78
40	52	46	71
30	54	46	65
20	56	47	60
15	56	47	60

Machining : not difficult; at times special tools recommended; some difficulty to obtain a smooth surface (alternative bands of hard and soft wood); splinters may cause irritations

Gluing : special precaution needed (dry wood and smooth surface)

Nailing : pre-boring necessary; tends to split

Finishing : good; requires care during sanding and finishing

Veneering : good

Natural durability

Resistance to decay : very good

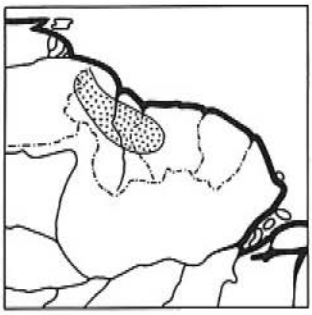
Resistance to termites : good

Resistance to insects of dry wood : good

Treatability : poor

Uses : cabinet work; exterior joinery; marquetry; turnery; interior joinery; weathered construction; vehicle bodies; wagon trays; heavy construction; sleepers; flooring

5 *Aniba hypoglauca* Sandw. **Yellow silverballi**



5. *Aniba hypoglauca*

Synonym	:	*Aniba ovalifolia* Kosterm., non Mez
Family	:	Lauraceae
Vernacular names		
Guyana	:	Ginger gale, Kawioi, Kurero silverballi, Yellow silverballi, Yellow sweetwood
International trade name	:	Yellow silverballi
Distribution	:	Guyana
Tree description		
Length of the bole	:	12-18m; height of tree: 20-30m
Diameter	:	0.50-0.75m
Shape of the log	:	cylindrical; base buttressed
Wood description		
Sapwood	:	distinct, light yellowish
Heartwood	:	golden brown or brownish yellow with a greenish hue; turning to dark brown or olive with age; lustrous; spicy odour
Grain	:	straight
Texture	:	fairly fine
Technological characteristics		
Physical properties		
Air-dry density at 12% (g/cm^3)	:	0.58-0.64
Total tangential shrinkage (%)	:	6.6-8.0
Total radial shrinkage (%)	:	4.1-5.0
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	67
Modulus of elasticity at 12% (N/mm^2)	:	9100
Crushing strength at 12% (N/mm^2)	:	40

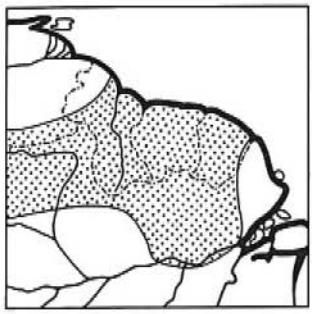
Processing

Sawing	:	easy
Drying	:	easy risks of distortion: slight risks of checking: slight
Machining	:	easy
Finishing	:	good
Veneering	:	should peel and slice well

Natural durability

Resistance to decay	:	moderate to good
Resistance to termites	:	very good
Resistance to insects of dry wood	:	good

Uses	:	light carpentry; furniture; veneer; plywood; interior trim; joinery; turnery; millwork; durable construction; boat building



6. *Antonia ovata*

Family	:	Loganiaceae
Vernacular names		
Guyana	:	Icanu, Inyak, Tamanokwarc
French Guiana	:	Bois blanc, Bois cassave, Kasaba oudou, Wetipaou
Suriname	:	Hariroroe, Ipoentrie, Kasabahoedoe, Kasave, Licahout, Lika oedoe, Melasslehoedoe, Paloeloipio, Thoeraroe
International trade name	:	Inyak
Distribution	:	Brazil, the Guianas
Tree description		
Length of the bole	:	around 20m; height of tree: 25m
Diameter	:	0.30-0.45m
Shape of the log	:	straight, slightly fluted, unbuttressed but sometimes with basal swelling or root spurs
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	cream white darkening to yellow grey upon exposure, luster medium
Grain	:	irregular
Texture	:	medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	0.75-0.85
Air-dry density at 12% (g/cm^3)	:	0.56
Basic specific gravity	:	0.52
Total tangential shrinkage (%)	:	7.4
Total radial shrinkage (%)	:	3.8
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	94
Modulus of elasticity at 12% (N/mm^2)	:	9400
Crushing strength at 12% (N/mm^2)	:	53

Processing

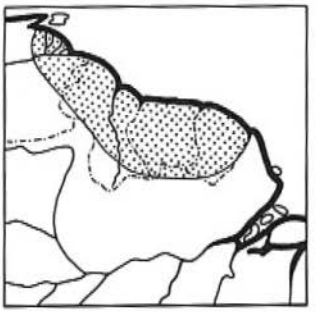
Sawing	:	easy blunting effect: very slight
Drying	:	moderate rate risks of checking: moderate
Machining	:	not difficult
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good
Veneering	:	can be peeled

Natural durability

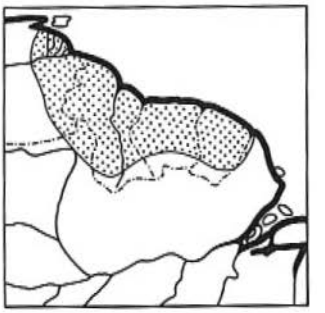
Resistance to decay	:	poor
Resistance to insects of dry wood	:	poor

Treatability	:	good
Uses	:	interior joinery; matches; exterior joinery (treated); boxes and crates; plywood (interior plies)

7 ***Aspidosperma cruentum*** Woodson **Shibadan**
7a ***Aspidosperma album*** (Vahl) Benoist **Shibadan**



7. *Aspidosperma cruentum*



7a. *Aspidosperma album*

Family	:	Apocynaceae
Vernacular names		
Guyana	:	Shibadan
Brazil	:	Araracanga, Maparana
French Guiana	:	Bois macaye
Suriname	:	Kromantl kopi
International trade name	:	Araracanga (7a), Shibadan (7)
Distribution	:	The Guianas
Tree description		
Length of the bole	:	18-21m; height of tree: 25-40m
Diameter	:	0.5-0.8m
Shape of the log	:	cylindrical or slightly flattened; base unbuttressed or somewhat swollen
Wood description		
Sapwood	:	distinct, light greyish brown
Heartwood	:	orange yellow to yellow brown at times with reddish or pinkish tinge or zones
Grain	:	straight sometimes irregular or rocy
Texture	:	rather fine to medium

Technological characteristics			
Physical properties	:	*A. cruentum*	*A. album*
Green density (g/cm^3)	:	1.06	-
Air-dry density at 12% (g/cm^3)	:	0.95	0.91
Basic specific gravity	:	0.75	0.79
Total tangential shrinkage (%)	:	9.7	9.8
Total radial shrinkage (%)	:	6.8	6.2
Total volumetric shrinkage (%)	:	18.5	-

Mechanical properties		*A. cuentum*	*A. album*
Bending strength at 12% (N/mm²)	:	174	176
Modulus of elasticity at 12% (N/mm²)	:	24810	19560
Crushing strength at 12% (N/mm²)	:	89	93

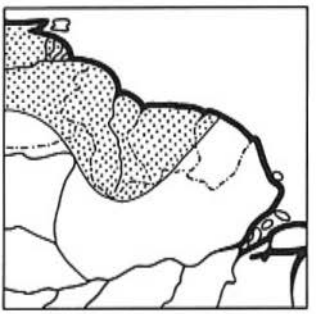
Processing

Sawing	:	power required
Drying	:	not difficult to air-season use a moderate rate to avoid checks for species in the Araracanga group use U.S. kiln schedule T7-B3 for 25-38 mm (4/4 to 6/4) stock
Machining	:	not difficult
Nailing	:	pre-boring necessary, poor holding of nails
Finishing	:	good

Natural durability

Resistance to decay	:	moderate to very good
Resistance to termites	:	poor to moderate
Resistance to insects of dry wood	:	good

Treatability	:	poor to moderate
Uses	:	flooring; interior trim; furniture; general carpentry; turnery; carving



8. *Aspidosperma vargasii*

Family	:	Apocynaceae
Vernacular names		
Guyana	:	Currywood, Kanirip, Shibadan, Shiritikan
Venezuela	:	Amarillo, Yema de huevo
International trade name	:	Pau marfim
Distribution	:	Brazil, Guyana, Suriname and Venezuela
Tree description		
Length of the bole	:	18-20m; height of tree: 25-35m
Diameter	:	0.5-0.7m
Shape of the log	:	cylindrical to slightly flattened, base straight or sometimes swollen
Wood description		
Sapwood	:	not clearly distinct, light yellow-brown
Heartwood	:	bright clear yellow sometimes with a greenish tinge
Grain	:	mostly straight to sometimes irregular
Texture	:	very fine and uniform

The following data are based on *Aspidosperma macrocarpon* C. Martius which is similar to *Aspidosperma vargasii* in appearance and technical properties.

Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.11
Air-dry density at 12% (g/cm^3)	:	0.80
Basic specific gravity	:	0.67
Total tangential shrinkage (%)	:	8.0
Total radial shrinkage (%)	:	4.1
Total volumetric shrinkage (%)	:	11.8

Mechanical properties

Bending strength at 15% (N/mm^2)	:	112
Modulus of elasticity (green) (N/mm^2)	:	14220
Crushing strength at 15% (N/mm^2)	:	66

Processing

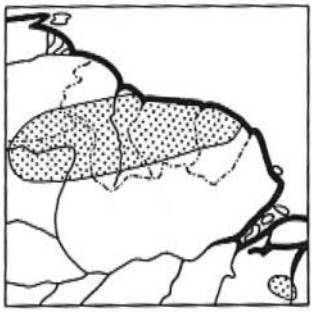
Sawing	:	power required
Drying	:	easy
Machining	:	easy
Nailing	:	pre-boring necessary
Finishing	:	good

Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor

Treatability	:	poor
Uses	:	many of the same uses as West Indian Boxwood turnery; carving; handles for cutlery; flooring; cabinet work; furniture; inlay; marquetry

9 *Astronium ulei* Mattick **Bauwaua**



9. *Astronium ulei*

Family	:	Anacardiaceae
Vernacular names		
Guyana	:	Bastard purpleheart, Bauwaua
Brazil	:	Muiracatiara
International trade name	:	Bauwaua
Distribution	:	Brazil, Guyana, Suriname and Venezuela
Tree description		
Length of the bole	:	18-21m; height of tree: up to 40m
Diameter	:	0.6 m
Shape of the log	:	cylindrical; base swollen or buttressed
Wood description		
Sapwood	:	not clearly distinct, pink
Heartwood	:	rich red or orange-brown with dark streaks
Grain	:	straight to roey
Texture	:	medium, luster lacking
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.06
Air-dry density at 12% (g/cm^3)	:	0.81
Basic specific gravity	:	0.71
Total tangential shrinkage (%)	:	8.1
Total radial shrinkage (%)	:	4.3
Total volumetric shrinkage (%)	:	12.2
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	115
Modulus of elasticity at 12% (N/mm^2)	:	13435
Crushing strength at 12% (N/mm^2)	:	69

Processing

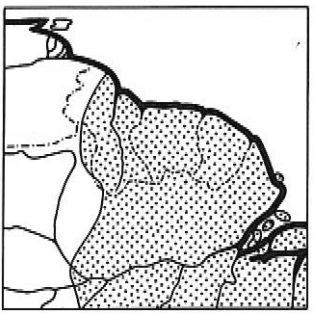
Sawing	:	easy to moderate
Drying	:	moderate
	:	U.S. kiln schedule T3-C2 for 25-38 mm (4/4 to 6/4) stock and British schedule C (25 mm) suggested for *A. graveolens*
Machining	:	easy
Gluing	:	difficult
Finishing	:	excellent
Veneering	:	good, especially slicing

Natural durability

Resistance to decay	:	very good

Treatability : poor

Uses : heavy construction; boat building; light construction; carving; turnery; knife handles; panelling; billiard cue butts; fine furniture and cabinet work; decorative veneer



10. *Bagassa guianensis*

Synonym	:	*Bagassa tiliifolia* (Hamilton) Benoist
Family	:	Moraceae
Vernacular names		
Guyana	:	Cow-wood, Katowar, Odon, Tuwne, Yawahudan
Brazil	:	Amapa-rana, Amarelo, Bagaceira, Garrote, Tatajuba
French Guiana	:	Bagasse, Kaw oudou, ●doun
Suriname	:	Jawahedan, Kanhocdoc, Kaw-ocdoc
International trade name	:	Tatajuba
Distribution	:	Brazil and the Guianas
Tree description		
Length of the bole	:	20-25m; height of tree: 35m
Diameter	:	0.60-0.95m, sometimes 1m or more
Shape of the log	:	straight and cylindrical, generally unbuttressed but base with root spurs
Wood description		
Sapwood	:	distinct, yellowish white (2-4cm)
Heartwood	:	yellow becoming dark brown on exposure
Grain	:	frequently but slightly interlocked
Texture	:	medium to coarse
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.10
Air-dry density at 12% (g/cm^3)	:	●.8●
Basic specific gravity	:	●.73
Total tangential shrinkage (%)	:	5.2
Total radial shrinkage (%)	:	3.7
Total volumetric shrinkage (%)	:	9.6

Mechanical properties

Bending strength at 12% (N/mm²)	:	121
Modulus of elasticity at 12% (N/mm²)	:	17300
Crushing strength at 12% (N/mm²)	:	78

Processing

Sawing	:	power required blunting effect: very slight
Drying	:	no important problems; moderate rate kiln schedule for 41 mm listed below risks of distortion: very slight to slight risks of checking: very slight during the drying the stickers often leave more or less conspicuous marks movement in service low

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	41	94
50	42	41	94
40	42	41	94
30	48	43	74
20	54	46	65
15	61	51	58

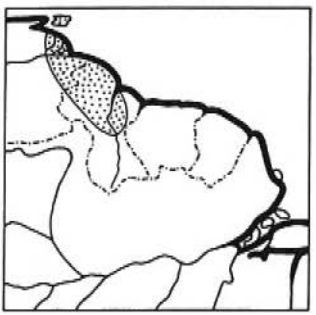
Machining	:	not difficult or difficulties could occur when highly interlocked grain is present
Gluing	:	good
Nailing	:	good holding of nails; at times pre-boring necessary
Finishing	:	good
Veneering	:	interesting for slicing

Natural durability

Resistance to decay	:	very good
Resistance to termites	:	good
Resistance to insects of dry wood	:	good

Treatability	:	poor
Uses	:	cabinet work; flooring; exterior and interior joinery; stairs; carpentry; fittings; sporting equipment; wainscoting; shipbuilding (deck-planking-rib); moulding; heavy construction; turnery

11 *Calophyllum lucidum* Benth. **Kurahara**



11. *Calophyllum lucidum*

Family	:	Guttiferae
Vernacular names		
Guyana	:	Kopö, Kurahara, Marawaro, Serena, Watschir
Suriname	:	Koerahara, Koerli
International trade name	:	Santa Maria
Distribution	:	Guyana and Eastern Venezuela
Tree description		
Length of the bole	:	15-21m, may reach 35m; height of tree: 30-45m
Diameter	:	0.8 up to 1.8m
Shape of the log	:	straight and cylindrical; base somewhat swollen to buttressed
Wood description		
Sapwood	:	not clearly distinct, light brown (5-7cm)
Heartwood	:	reddish brown with fine darker red striping
Grain	:	generally interlocked, at times straight
Texture	:	medium and fairly uniform

The following data are based on *Calophyllum brasiliense* Camb. which is similar to *C. lucidum* in appearance and technical properties.

Technological characteristics

Physical properties

Green density (g/cm^3)	:	0.95
Air-dry density at 12% (g/cm^3)	:	0.65
Basic specific gravity	:	0.56
Total tangential shrinkage (%)	:	8.1
Total radial shrinkage (%)	:	5.5
Total volumetric shrinkage (%)	:	14.0

Mechanical properties

Bending strength at 12% (N/mm^2)	:	111
Modulus of elasticity at 12% (N/mm^2)	:	13280
Crushing strength at 12% (N/mm^2)	:	58

Processing

Sawing	:	easy blunting effect: very slight to moderate brown gum streaks, when present, cause rapid blunting of cutting edges
Drying	:	moderately difficult; requires care U.S. kiln schedule T2-D4 for 25-38 mm (4/4 to 6/4) stock and T2-D3 for 50 mm (8/4) stock; British schedule A (25 mm); or kiln schedule for 41 mm listed below risks of distortion: high risks of checking: more or less high possible risk of casehardening; kiln-drying of quarter sawn boards is recommended movement in service medium

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	39	83
50	48	43	74
40	48	43	74
30	48	43	74
25	54	46	65
15	54	46	65

Machining	:	fairly easy; difficulties in the presence of interlocked grain (tearing)
Gluing	:	good
Nailing	:	good holding of nails; tendency to split
Finishing	:	good after filling
Veneering	:	can be sliced and peeled (decorative veneer)

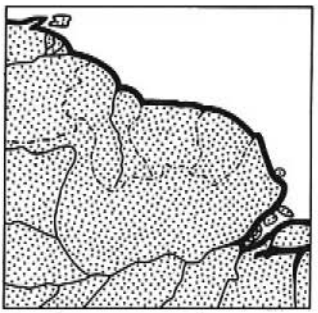
Natural durability

Resistance to decay	:	good
Resistance to termites	:	poor to moderate
Resistance to insects of dry wood	:	good

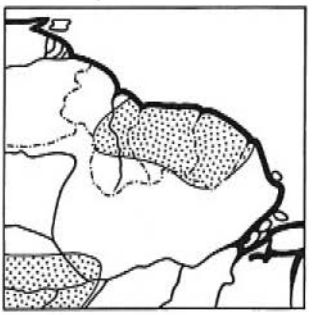
Treatability : poor

Uses : decorative sliced veneer; plywood; interior and exterior joinery; fittings; cabinet work; general construction; shingles; cooperage; furniture; flooring; boat building

12 ***Carapa guianensis*** Aublet **Crabwood**
12a ***Carapa procera*** A. DC. **Crabwood**



12. *Carapa guianensis*



12a. *Carapa procera*

Family	:	Meliaceae
Vernacular names		
Guyana	:	Crabwood, Karaba, Karapai, Karapa-yek
Brazil	:	Andiroba, Andirobeira, Carapa
Central America	:	Bastard mahogany, Cedro bateo, Cedro macho
Colombia	:	Masabalo, Mazabalo
Ecuador	:	Figueroa, Tangare
French Guiana	:	Carapa, Carapa rouge, Kaapa
Suriname	:	Krappa
Trinidad and Tobago	:	Crappo
Venezuela	:	Carapa, Masabalo
International trade name	:	Andiroba (12, 12a), Crabwood (12, 12a)
Distribution	:	Central and Tropical South America also the Caribbean
Tree description		
Length of the bole	:	15-20m; height of tree: 25-35m
Diameter	:	0.65-0.95(-1.8)m
Shape of the log	:	straight and cylindrical; base swollen or buttressed
Wood description		
Sapwood	:	not clearly distinct, pinkish and turning pale brown or greyish (3-4cm)
Heartwood	:	pale pink, through rich red brown to dark brown, streaked with black
Grain	:	generally straight, at times slightly interlocked
Texture	:	medium to coarse
Remark	:	the silver figure is fine, purplish and clearly visible

Technological characteristics

Physical properties

Green density (g/cm³)	:	0.95
Air-dry density at 12% (g/cm³)	:	0.67
Basic specific gravity	:	0.59
Total tangential shrinkage (%)	:	7.7
Total radial shrinkage (%)	:	4.8
Total volumetric shrinkage (%)	:	12.9

Mechanical properties

Bending strength at 12% (N/mm²)	:	111
Modulus of elasticity at 12% (N/mm²)	:	11800
Crushing strength at 12% (N/mm²)	:	59

Processing

Sawing : easy
blunting effect: very slight to slight

Drying : care required; air-drying under cover is recommended
U.S. kiln schedule T3-C2 for 25-38 mm (4/4 to 6/4) stock and T3-C1 for 50 mm (8/4) stock; British schedule C (25 mm); or kiln schedule for 41 mm listed below
risks of distortion: slight
risks of checking: more or less high
occasional risks of collapse
movement in service low to medium

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	41	94
30	42	41	94
25	42	39	83
20	48	43	74
15	48	43	74

Machining	:	some difficulties due to grain occasionally interlocked
Gluing	:	good
Nailing	:	good holding of nails; tends to split on end grain
Finishing	:	good
Veneering	:	peels and slices well

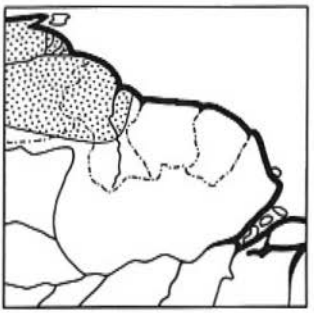
Natural durability

Resistance to decay	:	poor to moderate
Resistance to termites	:	poor to moderate
Resistance to insects of dry wood	:	good, but vulnerable to powder-post beetle attack

Treatability : poor

Uses : interior joinery; carpentry; furniture; cabinet work; flooring; decorative veneer; fittings; laminated beam; exterior joinery (treatment recommended)

13 *Catostemma commune* Sandw. **Common baromalli**



13. *Catostemma commune*

Family	:	Bombacaceae
Vernacular names		
Guyana	:	Baramanni, Baromalli, Common baromalli, Katama, Paku, Simana, Swamp baromalli
Venezuela	:	Baraman
International trade name	:	Baromalli
Distribution	:	Guyana and Venezuela
Tree description		
Length of the bole	:	18-21m; height of tree: 30-45m
Diameter	:	0.45-0.70(-1.5)m
Shape of the log	:	straight, slender and cylindrical; unbuttressed
Wood description		
Sapwood	:	not clearly distinct, light yellowish brown
Heartwood	:	dull yellowish brown to pinkish brown
Grain	:	straight
Texture	:	coarse
Remark	:	silver figure is visible
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.12
Air-dry density at 12% (g/cm^3)	:	0.60
Basic specific gravity	:	0.46
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	77
Modulus of elasticity at 12% (N/mm^2)	:	12540
Crushing strength at 12% (N/mm^2)	:	46

Processing

Sawing	:	easy blunting effect: moderate
Drying	:	rather slow; requires care U.S. kiln schedule T6-D2 for 25-38 mm (4/4 to 6/4) stock and T3-D1 for 50 mm (8/4) stock or British schedule E (25 mm) risks of distortion: slight risks of checking: moderate movement in service large
Machining	:	moderately difficult because of gritty nature; sharpening of tools often necessary
Gluing	:	good
Nailing	:	good
Finishing	:	filling is required
Veneering	:	easy to cut into veneer

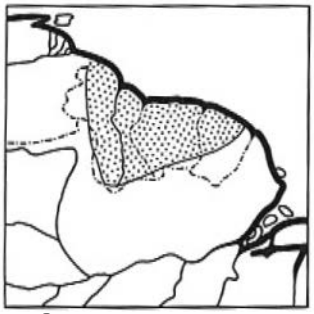
Natural durability

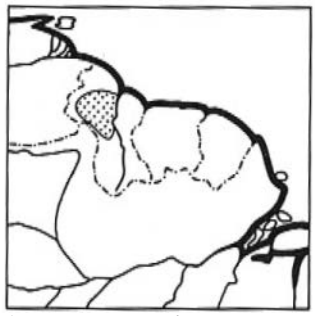
Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability : good

Uses : interior joinery; utility plywood; light carpentry; cheap furniture; boxes and crates; interior trim; pulpwood; general construction work where dimensional stability is not required

14 *Catostemma fragrans* Benth. **Sand baromalli**
14a *Catostemma altsonii* Sandw. **Baromalli**


14. *Catostemma fragrans*


14a. *Catostemma altsonii*

Family	:	Bombacaceae
Vernacular names		
Guyana	:	Adarouna, Baramanni, Baromalli, Katamana, Koron, Paku, Sand baromalli, Simana
French Guiana	:	Flambeau rouge
Suriname	:	Barmani, Foetei, Kajoewaballi
International trade name	:	Baromalli (14, 14a)
Distribution	:	The Guianas
Tree description		
Length of the bole	:	21-27m; height of tree: 30-45m
Diameter	:	0.6-0.9m, occasionally up to 1.2m
Shape of the log	:	straight, slender and cylindrical; base unbuttressed
Wood description		
Sapwood	:	not clearly distinct, light yellowish brown
Heartwood	:	dull yellowish brown to pinkish brown
Grain	:	straight
Texture	:	coarse
Remark	:	silver figure is visible
Technological characteristics		
Physical properties	:	*C. fragrans*
Green density (g/cm^3)	:	1.12
Air-dry density at 12% (g/cm^3)	:	0.59
Basic specific gravity	:	0.45
Total tangential shrinkage (%)	:	11.7
Total radial shrinkage (%)	:	5.4

Mechanical properties

Bending strength at 12% (N/mm^2)	:	79
Modulus of elasticity at 12% (N/mm^2)	:	10700
Crushing strength at 12% (N/mm^2)	:	46

Processing

Sawing	:	easy blunting effect: moderate
Drying	:	rather slow; requires care see *C. commune* (no. 13) for kiln schedules risks of distortion: slight risks of checking: moderate movement in service large
Machining	:	moderately difficult because of gritty nature; sharpening of tools often necessary
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	filling is required
Veneering	:	easy to cut into veneer

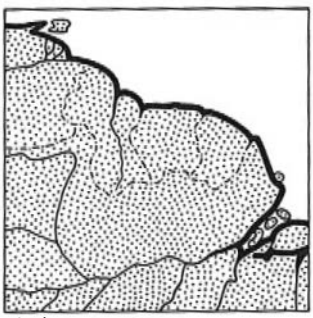
Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability : good

Uses : interior joinery; utility plywood; light carpentry; cheap furniture; boxes and crates; interior trim; pulpwood; general construction work where dimensional stability is not required

15 *Cedrela odorata* L. **Red cedar***



15. *Cedrela odorata*

Family	:	Meliaceae
Vernacular names		
Principal name	:	Cedro (with qualifying adjectives)
Guyana	:	Akuyari, Atoreb, Koperi, Kurana, Parank, Paranka, Red cedar*
Brazil	:	Cedro (with qualifying adjectives except Cedrorana)
French Guiana	:	Acajou de Guyane, Cedrat, Cedro
Honduras	:	Cedro, Cigarbox
Suriname	:	Ceder, Sedre
International trade name	:	Cedro
Distribution	:	Mexico to South America and the West Indies
Tree description		
Length of the bole	:	12-18m; height of tree: 30-40(-45)m
Diameter	:	0.5-0.9, may reach 1.8m
Shape of the log	:	straight, cylindrical; base buttressed; usually eccentric heart
Wood description		
Sapwood	:	clearly distinct, pinkish beige (3-5cm)
Heartwood	:	pinkish to red and reddish brown
Grain	:	straight, sometimes interlocked
Texture	:	fine and uniform to coarse and uneven
Remark	:	sometimes with important resin marks; distinctive cedar odour

* Do not confuse with Eastern Red cedar (*Juniperus virginiana* L.) of North America which is a softwood and is resinous and pink in colour.

Technological characteristics

Physical properties

Green density (g/cm³)	:	0.80
Air-dry density at 12% (g/cm³)	:	0.44
Basic specific gravity	:	0.38
Total tangential shrinkage (%)	:	6.1
Total radial shrinkage (%)	:	3.8
Total volumetric shrinkage (%)	:	10.0

Mechanical properties

Bending strength at 12% (N/mm²)	:	65
Modulus of elasticity at 12% (N/mm²)	:	6880
Crushing strength at 12% (N/mm²)	:	35

Remark	:	air-dry density varies according to origin (0.35-0.55 g/cm³, ave. 0.44 g/cm³)

Processing

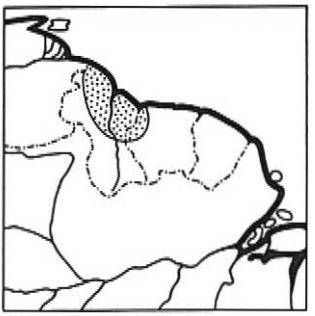
Sawing	:	easy; tendency to woolliness (light woods) resin may clog sawteeth blunting effect: very slight
Drying	:	rapid, no important problems U.S. kiln schedule T10-D4S for 25-38 mm (4/4 to 6/4) stock and T8-D3S for 50 mm (8/4) stock or British schedule H (25 mm) heating to 93°C (200°F) for 8 to 17 hours at a relative humidity of 60% is suggested to control oil and gum exudates in service risks of distortion: very slight risks of checking: very slight risks of collapse for light woods movement in service low
Machining	:	easy
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good after filling; some resin exudations
Veneering	:	peels well but with some tendency for woolly surfaces

Natural durability

Resistance to decay	:	moderate to good
Resistance to termites	:	poor to moderate
Resistance to insects of dry wood	:	good

Treatability	:	poor
Uses	:	plywood; cigar boxes; exterior and interior joinery; furniture; decorative veneer; ship and boat building; decorative fittings; shingles; musical instruments

16 ***Chlorocardium rodiei*** (Schomb.) Rohwer, Richter & van der Werff **Greenheart**



16. *Chlorocardium rodiei*

Synonym	:	*Ocotea rodiei* (Schomb.) Mcz
Family	:	Lauraceae
Vernacular names		
Guyana	:	Bibiro, Bibiru, Cogwood, Greenheart, Kut, Rora(yek), Sipiri, Sipu
Brazil	:	Bibiru, Itauba branca
Suriname	:	Beeberoe, Demerara groenhart, Sipiroe
Venezuela	:	Viruviru
Distribution	:	Endemic to Guyana and Western Suriname
International trade name	:	Greenheart
Tree description		
Length of the bole	:	15-23m; height of tree: 20-45m
Diameter	:	0.35-0.60(-1.0)m
Shape of the log	:	straight and cylindrical with moderate taper; base swollen or buttressed
Wood description		
Sapwood	:	not clearly distinct from heartwood
Heartwood	:	yellow beige to dark olive brown at times with irregular darker veins
Grain	:	straight to roey
Texture	:	fine
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.30
Air-dry density at 12% (g/cm^3)	:	0.97
Basic specific gravity	:	0.80
Total tangential shrinkage (%)	:	8.2
Total radial shrinkage (%)	:	7.5
Total volumetric shrinkage (%)	:	15.0

Mechanical properties

Bending strength at 12% (N/mm^2)	:	240
Modulus of elasticity at 12% (N/mm^2)	:	24500
Crushing strength at 12% (N/mm^2)	:	98

Processing

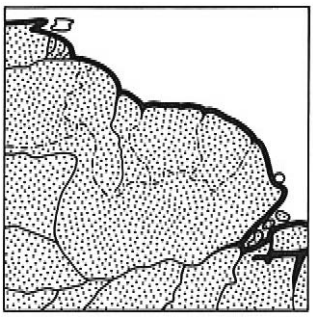
Sawing	:	power required blunting effect: moderate to high
Drying	:	very slow (air-seasoning is recommended prior to kiln-drying) U.S. kiln schedule T2-C2 for 25-38 mm (4/4 to 6/4) stock and T2-C1 for 50 mm (8/4) stock or British schedule B (25 mm) risks of distortion: slight risks of checking: possible, marked tendency to check and end split
Machining	:	difficult due to hardness; necessary to maintain sharp tools; the fine dust may cause allergy
Gluing	:	special precautions needed
Nailing	:	pre-boring necessary
Finishing	:	good
Veneering	:	possible to slice

Natural durability

Resistance to decay	:	very good
Resistance to termites	:	very good
Resistance to insects of dry wood	:	good

Remark	:	resistant to marine borers
Treatability	:	poor
Uses	:	marine construction; hydraulic works; shipbuilding; heavy carpentry; vats; billiard cue butts; heavy flooring; turnery

17 *Chrysophyllum pomiferum* (Eyma) Penn. **Limonaballi/Paripiballi**



17. *Chrysophyllum pomiferum*

Synonym	:	*Achrouteria pomifera* Eyma
Family	:	Sapotaceae
Vernacular names		
Guyana	:	Aknon, Haimara-kushi, Kwikpa, Limonaballi, Paripiballi
Brazil	:	Abiurana
Colombia	:	Punte
French Guiana	:	Balata jaune d'oeuf, Mongui soke
Venezuela	:	Capurillo, Felipe pena, Purguillo
International trade name	:	Limonaballi
Distribution	:	The Guianas, Venezuela, and Colombia, up to Central Amazonian Brazil and Peru
Tree description		
Length of the bole	:	16-24m; height of tree: 30-40m
Diameter	:	0.6-0.9m
Shape of the log	:	base buttressed or somewhat flanged
Wood description		
Sapwood	:	not clearly distinct, light brown
Heartwood	:	pale yellowish brown to dark brown
Grain	:	straight to interlocked
Texture	:	fine
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.11
Air-dry density at 12% (g/cm^3)	:	0.95
Basic specific gravity	:	0.7
Total tangential shrinkage (%)	:	11.2
Total radial shrinkage (%)	:	5.8
Total volumetric shrinkage (%)	:	16.4

Mechanical properties

Bending strength at 12% (N/mm²)	:	179
Modulus of elasticity at 12% (N/mm²)	:	19515
Crushing strength at 12% (N/mm²)	:	79

Processing

Sawing	:	power required blunting effect: silica
Drying	:	air-drying easy to moderate; some checking
Machining	:	moderate to difficult due to silica content
Nailing	:	pre-boring necessary

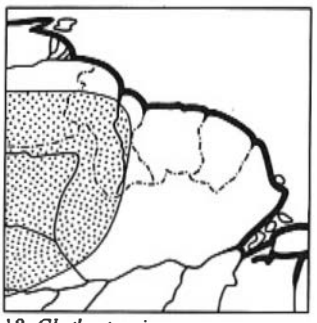
Natural durability

Resistance to decay	:	slight to moderate

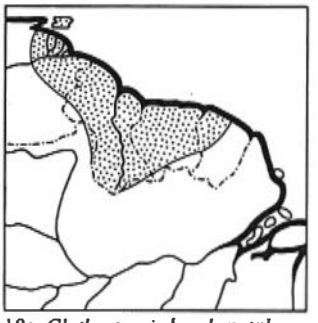
Treatability	:	good
Uses	:	heavy and light construction; posts

18 ***Clathrotropis macrocarpa*** Ducke **Aromata**

18a ***Clathrotropis brachypetala*** (Tul.) Kleinh. **Aromata**



18. *Clathrotropis macrocarpa*



18a. *Clathrotropis brachypetala*

Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Aromata, Kauwi, Korero, Mutuwali
Brazil	:	Cabary, Timbo pau, Timbo rana (*C. macrocarpa*)
Colombia	:	Alma negra, Bois sabre, Sapan, Tabaca (*C. macrocarpa*)
Trinidad and Tobago	:	Blackheart, Mayaro poui (*C. brachypetala*)
Suriname	:	Aroematta, Katje
International trade name	:	Aromata (18, 18a)
Distribution	:	Northern South America and the Caribbean
Tree description		
Length of the bole	:	12-15m; height of tree: 20-30m
Diameter	:	0.25-0.50(-0.60)m
Shape of the log	:	often somewhat flattened; base swollen to buttressed
Wood description		
Sapwood	:	distinct, wide, yellowish to brownish white
Heartwood	:	pinkish brown to dark brown with lighter streaks
Grain	:	straight
Texture	:	coarse
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.30
Air-dry density at 12% (g/cm^3)	:	0.96 - 1.20*
Basic specific gravity	:	0.80 - 0.97*
Total tangential shrinkage (%)	:	6.7
Total radial shrinkage (%)	:	5.0

* Data from two different reference sources

Mechanical properties

Bending strength at 12% (N/mm²)	:	153	-	197*
Modulus of elasticity at 12% (N/mm²)	:	24120		
Crushing strength at 12% (N/mm²)	:	96	-	114*

Processing

Sawing	:	power required blunting effect: moderate
Drying	:	moderately difficult risks of distortion: moderate risks of checking: moderate
Machining	:	difficult
Gluing	:	easy
Finishing	:	good

Natural durability

Resistance to decay	:	moderate to very good
Resistance to termites	:	moderate
Resistance to insects of dry wood	:	good

Treatability	:	probably poor
Uses	:	heavy construction; boat building; industrial flooring; furniture components

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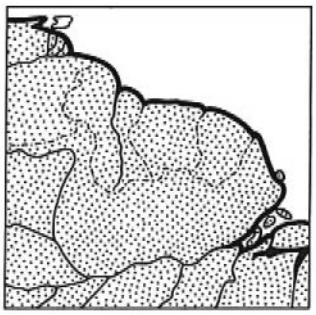
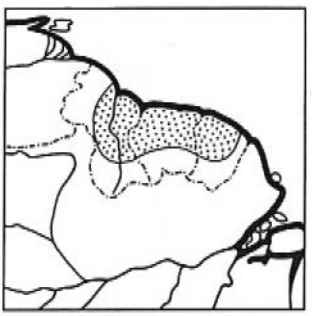
* Data from two different reference sources

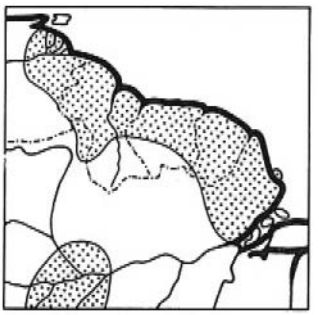
19	***Couratari guianensis*** Aublet	**Wadara**
19a	***Couratari gloriosa*** Sandw.	**Wadara**
19b	***Couratari multiflora*** (J. E. Smith) Eyma	**Smooth-leaf wadara**



19. *Couratari guianensis*



19a. *Couratari gloriosa*



19b. *Couratari multiflora*

Synonym (19)	:	*Couratari pulchra* Sandw.
Family	:	Lecythidaceae
Vernacular names		
Guyana	:	Fine-leaf wadara, Irimariye, Marimari, Smooth-leaf wadara (*C. multiflora*), Urlmarl, Wadara (*C. guianensis, C. gloriosa*), Waranaka (*C. guianensis*)
Brazil	:	Imbirema, Tauari (with qualifying adjectives)
Colombia	:	Coco cabeyo
French Guiana	:	Couatari, Inguipipa
Suriname	:	Ingipipa, Kalioe oelemaliti
Venezuela	:	Cachimbo, Cupa de tabuco, Tabari, Tampipio
International trade name	:	Tauari (19, 19a, 19b)
Distribution	:	Tropical South America
Tree description		
Length of the bole	:	16-30m; height of tree: 35-50m
Diameter	:	0.60-0.85(-1.0)m
Shape of the log	:	straight and cylindrical with stout buttresses which can reach 5m in height
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	variable, cream white to light beige with pinkish yellowish tinge
Grain	:	generally straight, sometimes rocy
Texture	:	medium

Technological characteristics

Physical properties

Green density (g/cm³)	:	0.85-0.95
Air-dry density at 12% (g/cm³)	:	0.62
Basic specific gravity	:	0.53
Total tangential shrinkage (%)	:	7.0
Total radial shrinkage (%)	:	4.5
Total volumetric shrinkage (%)	:	12.2

Mechanical properties

Bending strength at 12% (N/mm²)	:	96
Modulus of elasticity at 12% (N/mm²)	:	11700
Crushing strength at 12% (N/mm²)	:	48

Processing

Sawing	:	easy blunting effect: moderate to high (silica); the use of stellite-tipped teething is advisable
Drying	:	no important problems kiln schedule for 41 mm listed below risks of distortion: very slight risks of checking: very slight movement in service medium

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	57	51	72
50	57	48	60
40	60	48	50
30	66	49	40
20	77	53	30

Machining	:	not difficult; tools tipped with tungsten carbide are recommended
Gluing	:	good
Nailing	:	medium holding of nails
Finishing	:	good
Veneering	:	peels and slices rather easily; logs are steamed at a temperature between 70 and 80°C

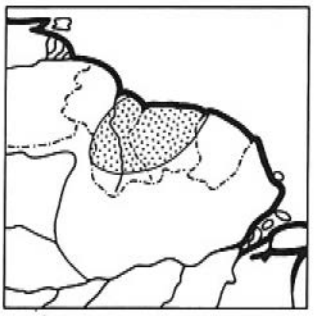
Natural durability

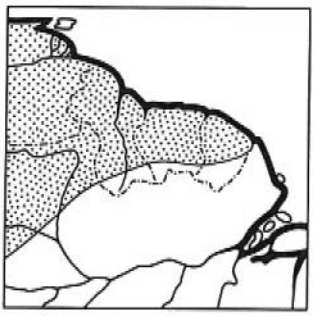
Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability : good

Uses : interior joinery; plywood; exterior joinery (with treatment); cheap furniture; moulding; light construction; boxes and crates; formwork; toys; flooring

20 ***Dimorphandra conjugata*** (Splitg.) Sandw. **Dakama**
20a ***Dimorphandra polyandra*** Benoist **Huruhurudan**


20. *Dimorphandra conjugata*


20a. *Dimorphandra polyandra*

Synonym (20a)	:	*Dimorphandra hohenkerkii* Sprague & Sandw.
Family	:	Leguminosae (Caesalpinioideae)
Vernacular names		
Guyana	:	Akayoran (*D. conjugata*), Dakama, Huruhurudan (*D. polyandra*)
French Guiana	:	Aieoueko, Mora*, Mora de Saint Laurent
Suriname	:	Akajoeran, Anjama, Dakama
International trade name	:	Aieoueko (20, 20a)
Distribution	:	The Guianas, Brazil and Venezuela
Tree description		
Length of the bole	:	15-21m; height of tree: 25-40m
Diameter	:	0.50-0.75m
Shape of the log	:	straight with large and shallow furrows; base with root spurs or buttresses
Wood description		
Sapwood	:	distinct, whitish
Heartwood	:	dark red brown (*D. conjugata*), yellowish with darker streaks (*D. polyandra*)
Grain	:	straight sometimes slightly interlocked
Texture	:	rather coarse

* Do not confuse with the species *Mora excelsa* Benth. also named Mora in Suriname and Guyana

Technological characteristics

Physical properties	:	*D. polyandra*
Green density (g/cm³)	:	> 1.00
Air-dry density at 12% (g/cm³)	:	0.71
Basic specific gravity	:	0.62
Total tangential shrinkage (%)	:	8.2
Total radial shrinkage (%)	:	4.6
Total volumetric shrinkage (%)	:	13.0
Mechanical properties		
Bending strength at 12% (N/mm²)	:	119
Modulus of elasticity at 12% (N/mm²)	:	12170
Crushing strength at 12% (N/mm²)	:	62

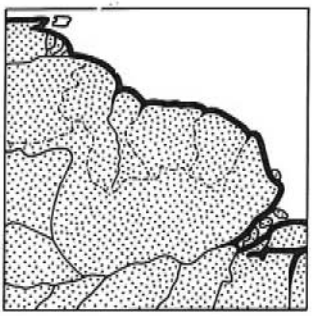
Processing

Sawing	:	easy (possible internal stresses) blunting effect: slight
Drying	:	seems to present some difficulties (difficult to dry, distortions) movement in service low to medium
Machining	:	easy
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good

Natural durability

Resistance to decay	:	very good
Resistance to termites	:	moderate
Resistance to insects of dry wood	:	good
Uses	:	interior and exterior joinery; carpentry; cheap furniture; boxes and crates; glued laminated beams

21 *Diplotropis purpurea* (Rich.) Amshoff **Tatabu**



21. *Diplotropis purpurea*

Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Konatopo, Ogoru, Olgoi, Tatabu
Brazil	:	Acapurana, Sapupira, Sucupira
Colombia	:	Aji, Arenillo, Zapan negro
French Guiana	:	Baaka kiabici, Coeurs dehors, Saint Martin gris
Peru	:	Chontaquiro, Huasai-caspi
Suriname	:	Blaka kabisi, Zwarte kabbes
Venezuela	:	Alcornoque, Congrio
International trade name	:	Sucupira
Distribution	:	Tropical South America
Tree description		
Length of the bole	:	18-21m; height of tree: up to 40m
Diameter	:	0.4-0.6(-1)m
Shape of the log	:	straight and cylindrical; base with root spurs
Wood description		
Sapwood	:	distinct, whitish or yellowish to cream (1-1.5cm)
Heartwood	:	medium or dark brown to reddish brown with fine lighter coloured stripes
Grain	:	straight or interlocked
Texture	:	medium to coarse
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.20
Air-dry density at 12% (g/cm^3)	:	0.91
Basic specific gravity	:	0.81
Total tangential shrinkage (%)	:	7.0
Total radial shrinkage (%)	:	4.9
Total volumetric shrinkage (%)	:	12.3

Mechanical properties

Bending strength at 12% (N/mm^2)	:	156
Modulus of elasticity at 12% (N/mm^2)	:	18000
Crushing strength at 12% (N/mm^2)	:	88

Processing

Sawing	:	power required blunting effect: moderate
Drying	:	slow air-drying; a period of air-drying recommended prior to kiln-drying U.S. kiln schedule T7-B3 for 25-38 mm (4/4 to 6/4) stock kiln schedule for 41 mm listed below risks of distortion: slight risks of checking: slight movement in service medium to large

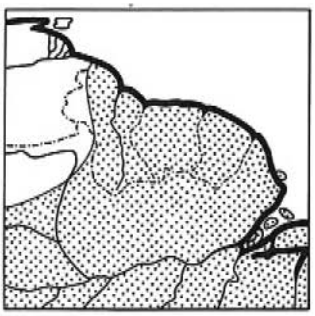
Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	50	50	100
50	47	44	84
40	47	44	84
30	47	44	84
20	58	54	80
15	58	52	72

Machining	:	difficulties due to hardness and interlocked grain
Gluing	:	special precautions needed
Nailing	:	pre-boring necessary
Finishing	:	good after filling
Veneering	:	can be sliced to produce decorative veneers

Natural durability

Resistance to decay	:	good to very good
Resistance to termites	:	very good
Resistance to insects of dry wood	:	good

Treatability	:	poor
Uses	:	fine furniture (solid wood and veneer); stairs; decorative fittings; flooring; cutlery; brush backs; turnery; tool handles; exterior and interior joinery; heavy construction



22. *Dipteryx odorata*

Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Aipö, Krapabosi, Kumaru, Tonka bean
Bolivia	:	Almendrillo
Brazil	:	Champanha, Cumaru, Mumapage
Central America	:	Almendro, Ebo
Colombia	:	Sarrapia
French Guiana	:	Gaiac de Cayenne, Tonka
Peru	:	Charapilla, Shihuahuaco amarillo
Suriname	:	Katoelimia, Koemaroe, Tonka
Venezuela	:	Sarrapia, Yape
International trade name	:	Cumaru
Distribution	:	Central and Tropical South America
Tree description		
Length of the bole	:	18-24m; height of tree: 30-48m
Diameter	:	0.30-0.75(-2.5)m
Shape of the log	:	straight, cylindrical; base with thick, broad root spurs or buttresses
Wood description		
Sapwood	:	distinct, yellowish (2-4cm)
Heartwood	:	beige brown with yellow or purplish pink tinge becoming red brown with age
Grain	:	frequently interlocked, sometimes highly
Texture	:	fine to medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.20
Air-dry density at 12% (g/cm^3)	:	1.07
Basic specific gravity	:	0.97
Total tangential shrinkage (%)	:	7.9
Total radial shrinkage (%)	:	5.3
Total volumetric shrinkage (%)	:	13.4

Mechanical properties

Bending strength at 12% (N/mm²)	:	200
Modulus of elasticity at 12% (N/mm²)	:	22000
Crushing strength at 12% (N/mm²)	:	105

Processing

Sawing	:	power required blunting effect: moderate
Drying	:	must be handled with care and slowly dried kiln schedule for 41 mm listed below risks of distortion: more or less high risks of checking: more or less high some risk of casehardening in thick stock movement in service low to medium

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	41	94
40	42	41	94
35	42	39	83
30	48	43	74
25	54	46	65
20	60	51	61

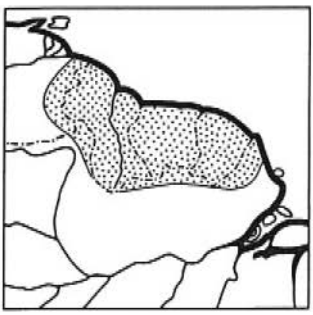
Machining	:	difficulties due to hardness and highly interlocked grain; special tools recommended
Gluing	:	difficult; special precautions needed
Nailing	:	pre-boring necessary
Finishing	:	good
Veneering	:	of interest for slicing (decorative veneer)

Natural durability

Resistance to decay	:	very good
Resistance to termites	:	very good
Resistance to insects of drywood	:	good

Treatability	:	poor
Uses	:	sleepers; bridges; flooring; weathered construction; hydraulic works; heavy carpentry; gearing; marine construction; decorative veneer; turnery

23 *Eperua falcata* Aublet — **Soft wallaba**



23. *Eperua falcata*

Family	:	Leguminosae (Caesalpinioideae)
Vernacular names		
Guyana	:	Beri oede wallaba, Parewe, Soft wallaba, White wallaba, Wopa
Brazil	:	Apa, Apazeiro, Espadeira, Muirapiranga, Yebaro
French Guiana	:	Bioudou, Bois sabre, Pangapanga, Tabaca, Wapa
Suriname	:	Awapa, Bijlhout, Wallaba
Venezuela	:	Bucare, Palo machete, Tabaco, Uapa
International trade name	:	Wallaba
Distribution	:	The Guianas and Amazon Basin
Tree description		
Length of the bole	:	15-20m; height of tree: 15-30(-40)m
Diameter	:	0.6m, occasionally up to 1m
Shape of the log	:	straight, cylindrical or slightly fluted; base straight or with few root spurs
Remark	:	risk of splitting in felling; large trees are often hollow
Wood description		
Sapwood	:	distinct, white grey to pinkish (2-12cm, average: 5cm)
Heartwood	:	dull reddish brown with darker markings due to resin
Grain	:	generally straight
Texture	:	medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.10
Air-dry density at 12% (g/cm^3)	:	0.86
Basic specific gravity	:	0.74
Total tangential shrinkage (%)	:	6.1
Total radial shrinkage (%)	:	2.1
Total volumetric shrinkage (%)	:	10.1

Mechanical properties

Bending strength at 12% (N/mm²)	:	128
Modulus of elasticity at 12% (N/mm²)	:	14400
Crushing strength at 12% (N/mm²)	:	69

Processing

Sawing	:	power required; important internal stresses resin may clog the sawteeth blunting effect: moderate
Drying	:	air-drying very slow a period of air-drying before kiln-drying is recommended U.S. kiln schedule T2-C2 for 25-38 mm (4/4 to 6/4) stock and T2-C1 for 50 mm (8/4) stock; British schedule B (25 mm); or kiln schedule for 41 mm listed below risks of distortion: more or less high risks of checking: more or less high movement in service medium

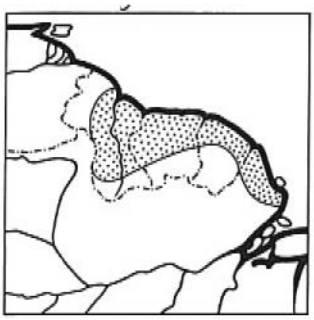
Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	40.5	38.0	85
40	42.0	38.5	80
30	43.0	39.0	78
25	46.0	40.5	70
20	55.0	46.0	60
15	60.0	50.5	60

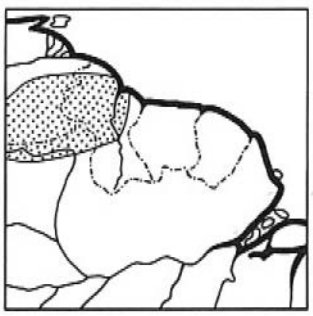
Machining	:	not difficult if dry wood (resin exudation limited)
Gluing	:	good
Nailing	:	good holding of nails; tendency to split; pre-boring necessary
Finishing	:	a careful sanding and a filling are recommended; gum exudation may be a problem
Veneering	:	unsuitable because of weight and gum exudation

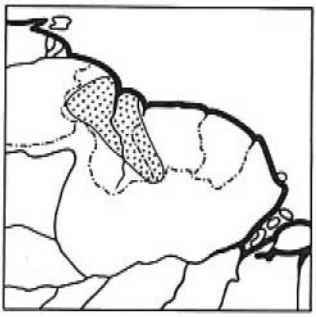
Natural durability

Resistance to decay	:	good to very good
Resistance to termites	:	good
Resistance to insects of dry wood	:	good
Remark	:	moderately resistant to marine borers
Treatability	:	poor
Uses	:	heavy construction; shingles; hydraulic works (fresh water); industrial flooring; exterior and interior joinery; sleepers; furniture; vats; poles and posts

24 ***Eperua grandiflora*** (Aublet) Benth. **Ituri wallaba**
24a ***Eperua jenmanii*** Oliver **Ituri wallaba**
24b ***Eperua schomburgkiana*** Benth. **Ituri wallaba**


24. *Eperua grandiflora*


24a. *Eperua jenmanii*


24b. *Eperua schomburgkiana*

Family	:	Leguminosae (Caesalpinioideae)
Vernacular names		
Guyana	:	Ituri wallaba, Water wallaba, Yoboko
Brazil	:	Apa, Apazeiro, Espadeira, Muirapiranga
French Guiana	:	Bioudou, Wapa, Wapa courbaril, Wapa montagne,
Suriname	:	Baboen wallaba, Bijlhout, Wallaba
Venezuela	:	Tabaco, Uapa
International trade name	:	Wallaba (24, 24a, 24b)
Distribution	:	The Guianas and adjacent Brazil and Venezuela
Tree description		
Length of the bole	:	15-20m; height of tree: 24-36m
Diameter	:	0.45-0.70(-0.8)m
Shape of the log	:	straight, cylindrical; base swollen to buttressed
Remark	:	risk of splitting in felling; large trees are often hollow
Wood description		
Sapwood	:	distinct, white grey to pinkish (2-12cm, average: 5cm)
Heartwood	:	dull reddish brown with darker markings due to resin
Grain	:	generally straight
Texture	:	medium
Technological characteristics		
Physical properties	:	*E. grandiflora*
Green density (g/cm^3)	:	1.10
Air-dry density at 12% (g/cm^3)	:	0.92
Basic specific gravity	:	0.79
Total tangential shrinkage (%)	:	7.2
Total radial shrinkage (%)	:	2.7
Total volumetric shrinkage (%)	:	12.4

Mechanical properties

Bending strength at 12% (N/mm²)	:	145
Modulus of elasticity at 12% (N/mm²)	:	16800
Crushing strength at 12% (N/mm²)	:	77

Processing

Sawing	:	power required; important internal stresses resin may clog the saw teeth blunting effect: moderate
Drying	:	air-drying very slow a period of air-drying before kiln-drying is recommended U.S. kiln schedule T2-C2 for 25-38 mm (4/4 to 6/4) stock and T2-C1 for 50 mm (8/4) stock; British schedule B (25 mm); or kiln schedule for 41 mm listed below risks of distortion: more or less high risks of checking: more or less high movement in service medium

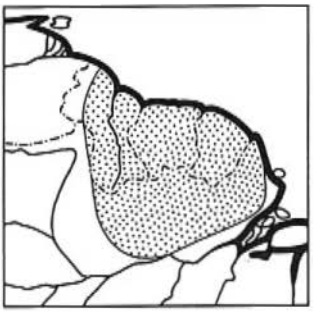
Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	40.5	38.0	85
40	42.0	38.5	80
30	43.0	39.0	78
25	46.0	40.5	70
20	55.0	46.0	60
15	60.0	50.5	60

Machining	:	not difficult if dry wood (resin exudation limited)
Gluing	:	good
Nailing	:	good holding of nails; tendency to split; pre-boring necessary
Finishing	:	a careful sanding and a filling are recommended; gum exudation may be a problem
Veneering	:	unsuitable because of weight and gum exudation

Natural durability

Resistance to decay	:	moderate
Resistance to termites	:	moderate
Resistance to insects of dry wood	:	good
Remark	:	poorly resistant to marine borers
Treatability	:	poor
Uses	:	heavy construction; shingles; hydraulic works (fresh water); industrial flooring; exterior and interior joinery; sleepers; furniture; vats; poles and posts

25 *Eperua rubiginosa* Miq. **Watapa**



25. *Eperua rubiginosa*

Family	:	Leguminosae (Caesalpinioideae)
Vernacular names		
Guyana	:	Watafa, Watapa, Water wallaba
Brazil	:	Apa, Apazeiro, Espadeira
French Guiana	:	Bioudou, Wapa, Wapa rivière
Suriname	:	Bijlhout, Jetoeri wallaba, Pallewie, Wallaba
Venezuela	:	Tabaco, Uapa
International trade name	:	Wallaba
Distribution	:	The Guianas and Amazon Basin
Tree description		
Length of the bole	:	15-20m; height of tree: 24-30m
Diameter	:	0.3-0.9m
Shape of the log	:	straight and cylindrical; base with root spurs or sometimes buttressed
Remark	:	risk of splitting in felling; large trees are often hollow
Wood description		
Sapwood	:	distinct, white grey to pinkish (2-12cm, average: 5cm)
Heartwood	:	dull reddish brown with darker markings due to resin
Grain	:	generally straight
Texture	:	medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.10
Air-dry density at 12% (g/cm^3)	:	0.86
Basic specific gravity	:	0.73
Total tangential shrinkage (%)	:	6.4
Total radial shrinkage (%)	:	2.2
Total volumetric shrinkage (%)	:	10.0

Mechanical properties

Bending strength at 12% (N/mm²)	:	134
Modulus of elasticity at 12% (N/mm²)	:	12200
Crushing strength at 12% (N/mm²)	:	74

Processing

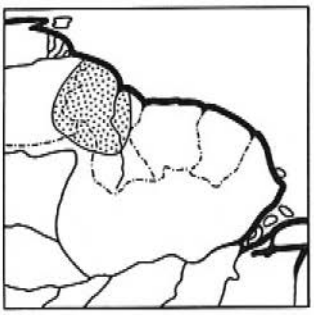
Sawing	:	power required; important internal stresses resin may clog the sawteeth blunting effect: moderate
Drying	:	air-drying very slow a period of air-drying before kiln-drying is recommended U.S. kiln schedule T2-C2 for 25-38 mm (4/4 to 6/4) stock and T2-C1 for 50 mm (8/4) stock; British schedule B (25 mm); or kiln schedule for 41 mm listed below risks of distortion: more or less high risks of checking: more or less high movement in service medium

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	40.5	38.0	85
40	42.0	38.5	80
30	43.0	39.0	78
25	46.0	40.5	70
20	55.0	46.0	60
15	60.0	50.5	60

Machining	:	not difficult if dry wood (resin exudation limited)
Gluing	:	good
Nailing	:	good holding of nails; tendency to split; pre-boring necessary
Finishing	:	a careful sanding and a filling are recommended; gum exudation may be a problem
Veneering	:	unsuitable because of weight and gum exudation

Natural durability

Resistance to decay	:	good
Resistance to termites	:	good
Resistance to insects of dry wood	:	good
Remark	:	good resistance to marine borers
Treatability	:	poor
Uses	:	heavy construction; shingles; hydraulic works; industrial flooring; exterior and interior joinery; sleepers; furniture; vats; poles and posts



26. *Eschweilera alata*

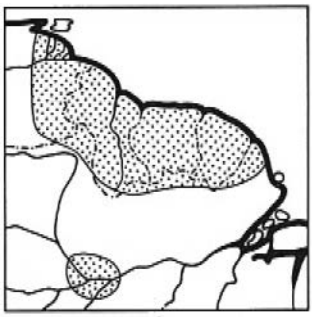
Family	:	Lecythidaceae
Vernacular names		
Guyana	:	Guava-skin kakaralli, Kakaralli, Okoromai, Tekröma
International trade name	:	Guava-skin kakaralli
Distribution	:	Guyana and Eastern Venezuela
Tree description		
Length of the bole	:	14-18m; height of tree: 20-30m
Diameter	:	0.2-0.4m
Shape of the log	:	base somewhat swollen, rarely buttressed
Wood description		
Sapwood	:	not clearly distinct, light brown
Heartwood	:	dark brown
Grain	:	straight
Texture	:	fine to medium

The following data are based on *Eschweilera parviflora* (Aublet) Miers from Venezuela, the Guianas, and Brazil, which is similar to *Eschweilera alata* in appearance and technical properties.

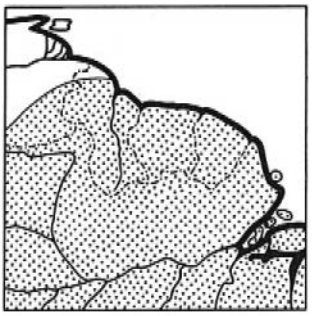
Technological characteristics		
Physical properties	:	*E. parviflora*
Green density (g/cm^3)	:	1.26
Air-dry density at 12% (g/cm^3)	:	1.12
Basic specific gravity	:	0.88
Total tangential shrinkage (%)	:	12.7
Total radial shrinkage (%)	:	7.4
Total volumetric shrinkage (%)	:	19.2
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	181
Modulus of elasticity at 12% (N/mm^2)	:	22928
Crushing strength at 12% (N/mm^2)	:	88

Processing		
Sawing	:	difficult (silica)
Drying	:	moderately difficult to air-season; moderate to slow rate
Machining	:	difficult because of hardness and silica content; special tools recommended
Gluing	:	difficult
Nailing	:	pre-boring necessary
Finishing	:	good
Natural durability		
Resistance to decay	:	moderate to good
Resistance to insects of dry wood	:	good
Treatability	:	poor
Uses	:	heavy carpentry; industrial flooring; sleepers; ship-building; frame construction; turnery; poles and posts; marine construction (temperate zone and tropics)

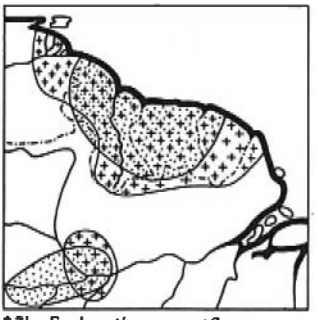
27	***Eschweilera decolorans*** Sandw.	**Smooth-leaf kakaralli**
27a	***Eschweilera coriacea*** (A. DC.) S. Mori	**Smooth-leaf kakaralli**
27b	***Eschweilera parviflora*** (Aublet) Miers	**Fine smooth-leaf kakaralli**
27c	***Eschweilera wachenheimii*** (Benoist) Sandw.	**Fine-leaf kakaralli**



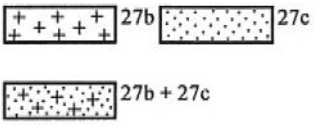
27. *Eschweilera decolorans*



27a. *Eschweilera coriacea*



27b. *Eschweilera parviflora*
27c. *Eschweilera wachenheimii*



Family	:	Lecythidaceae
Vernacular names		
Guyana	:	Akurima, Fine-leaf kakaralli (*E wachenheimii*), Fine-smooth-leaf kakaralli (*E. parviflora*), Kwateri, Kwatru (*E. decolorans*)
Brazil	:	Mata-mata, Matamata preto
French Guiana	:	Baakalaka, Baikaaki, Balibon, Kouanda, Mahot noir, Mahou
Suriname	:	Hoogland barklak, Manbarklak
International trade name	:	Smooth-leaf kakaralli (27, 27a, 27b, 27c)
Distribution	:	The Guianas and Amazon basin
Tree description		
Length of the bole	:	12-20m; height of tree: 28-37m
Diameter	:	0.3-0.6m
Shape of the log	:	base variable in shape, straight, swollen or buttressed
Wood description		
Sapwood	:	not clearly distinct (2-10cm)
Heartwood	:	grey brown
Grain	:	straight
Texture	:	fine to medium

Technological characteristics

Physical properties	:	*E. coriacea*
Green density (g/cm^3)	:	1.23
Air-dry density at 12% (g/cm^3)	:	1.00
Basic specific gravity	:	0.86
Total tangential shrinkage (%)	:	11.0
Total radial shrinkage (%)	:	6.4
Total volumetric shrinkage (%)	:	15.8
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	170
Modulus of elasticity at 12% (N/mm^2)	:	18600
Crushing strength at 12% (N/mm^2)	:	66

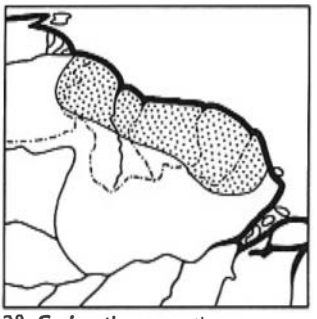
Processing

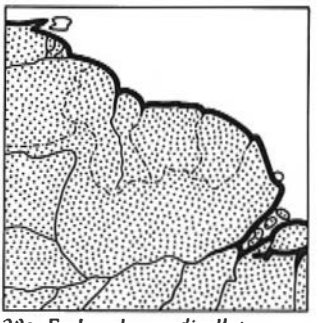
Sawing	:	power required blunting effect: high (silica)
Drying	:	moderately difficult to air-season; moderate to slow rate risks of distortion: slight risks of checking: slight slight risk of casehardening
Machining	:	difficult because of hardness and silica content; special tools recommended
Gluing	:	difficult
Nailing	:	pre-boring necessary
Finishing	:	good

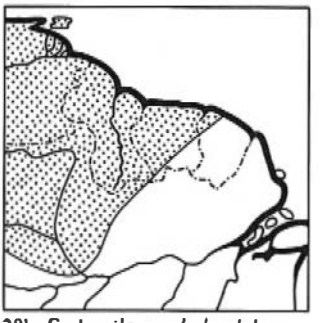
Natural durability

Resistance to decay	:	very good
Resistance to termites	:	variable, moderate to good
Resistance to insects of dry wood	:	good
Treatability	:	poor
Remark	:	very resistant to marine borers
Uses	:	heavy carpentry; industrial flooring; sleepers; ship-building; turnery; poles and posts; frame construction; marine construction (temperate zone and tropics)

28 ***Eschweilera sagotiana*** Miers **Common black kakaralli**
28a ***Eschweilera pedicellata*** (L.C. Rich.) S. Mori **Kakaralli**
28b ***Eschweilera subglandulosa*** (Steud. ex O. Berg) Miers **Black kakaralli**


28. *Eschweilera sagotiana*


28a. *Eschweilera pedicellata*


28b. *Eschweilera subglandulosa*

Family : Lecythidaceae

Vernacular names
Guyana : Black kakaralli, (*E. subglandulosa*), Common black kakaralli, Kakaralli (*E. pedicellata*), Kwateri, Kwatru, Pökö, Prukoi, Tamad (*E. sagotiana*)

Brazil : Mata-mata, Matamata preto
French Guiana : Baakalaka, Baikaaki, Balibon, Kouanda, Maho, Mahot noir, Mahou
Suriname : Hoogland barklak, Manbarklak

International trade name : Black kakaralli (28, 28a, 28b)

Distribution : The Guianas and Amazon Basin

Tree description
Length of the bole : 12-16m; height of tree: 15-30(40)m
Diameter : 0.3-0.6(-1)m
Shape of the log : base straight or buttressed

Wood description
Sapwood : not clearly distinct, light greyish brown (2-10 cm)
Heartwood : brown to dark brown
Grain : straight
Texture : fine to medium

Technological characteristics
Physical properties *E. subglandulosa*
Green density (g/cm^3) : 1.25
Air-dry density at 12% (g/cm^3) : 1.07
Basic specific gravity : 0.87
Total tangential shrinkage (%) : 10.3
Total radial shrinkage (%) : 5.8

Mechanical properties

Bending strength at 12% (N/mm^2)	:	182
Modulus of elasticity at 12% (N/mm^2)	:	21635
Crushing strength at 12% (N/mm^2)	:	77

Processing

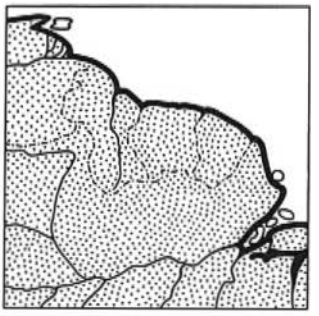
Sawing	:	power required blunting effect: high (silica)
Drying	:	moderately difficult to air-season; moderate to slow risks of distortion: slight risks of checking: slight slight risk of casehardening
Machining	:	difficult because of hardness and silica content; special tools recommended
Gluing	:	difficult
Nailing	:	pre-boring necessary
Finishing	:	good

Natural durability (*E. subglandulosa*)

Resistance to decay	:	very good
Resistance to termites	:	very good
Resistance to insects of dry wood	:	good

Treatability	:	poor
Remark	:	very resistant to marine borers
Uses	:	heavy carpentry; industrial flooring; sleepers; ship-building; poles and posts; turnery; frame construction; house framing; marine construction (temperate zone and tropics)

29 *Goupia glabra* Aublet **Kabukalli**



29. *Goupia glabra*

Family	:	Celastraceae
Vernacular names		
Guyana	:	Goupi, Kabiuk, Kabukalli, Kupiye, Stinkwood, Waramai
Brazil	:	Cachaceiro, Copiuva, Cupiuba
Colombia	:	Chaquiro, Saino, Sapino
French Guiana	:	Goupie
Peru	:	Capricornia
Suriname	:	Kopie
Venezuela	:	Congrio blanco
International trade name	:	Cupiuba, Kabukalli, Kopie
Distribution	:	Tropical South America
Tree description		
Length of the bole	:	14-21m; height of tree: 20-40m
Diameter	:	0.6-1m, may reach 1.5m
Shape of the log	:	straight, base swollen or buttressed
Wood description		
Sapwood	:	distinct, yellowish beige (3-8cm)
Heartwood	:	brown beige (lightly pink) to orange brown
Grain	:	straight to roey
Texture	:	medium to coarse
Remark	:	fresh wood has an unpleasant odour
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.13
Air-dry density at 12% (g/cm^3)	:	0.84
Basic specific gravity	:	0.74
Total tangential shrinkage (%)	:	8.8
Total radial shrinkage (%)	:	5.1
Total volumetric shrinkage (%)	:	14.3

Mechanical properties

Bending strength at 12% (N/mm^2)	:	122
Modulus of elasticity at 12% (N/mm^2)	:	14700
Crushing strength at 12% (N/mm^2)	:	62

Processing

Sawing	:	easy; possible internal stresses (sawing in the round recommended) blunting effect: moderate
Drying	:	slow and difficult U.S. kiln schedule T7-B3 for 25-38 mm (4/4 to 6/4) stock and kiln schedule for 41 mm listed below risks of distortion: more or less high risks of checking: more or less high risk of casehardening movement in service large

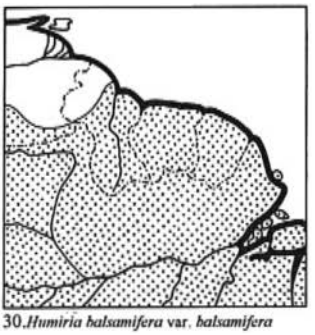
Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	41	94
50	42	41	94
40	48	43	74
30	54	46	65
20	60	51	61

Machining	:	no important difficulty but care is required in the presence of highly interlocked grain
Gluing	:	not satisfactory
Nailing	:	difficult; pre-boring necessary to avoid splitting
Finishing	:	suitable; sanding and filling are required
Veneering	:	easy to slice

Natural durability

Resistance to decay	:	moderate to good
Resistance to termites	:	good
Resistance to insects of dry wood	:	good

Treatability	:	moderate in sapwood; poor in heartwood
Uses	:	flooring; exterior construction; cheap furniture; carpentry; stairs; bridge decking; joinery; house framing; railway sleepers; plywood



30.*Humiria balsamifera* var. *balsamifera*

Synonym	:	*Humiria floribunda* Mart.
Family	:	Humiriaceae
Vernacular names		
Guyana	:	Bastard bulletwood, Meri, Tauaranru, Tauroniro
Brazil	:	Umiri
Colombia	:	Oloroso
Ecuador	:	Chanul
French Guiana	:	Bois rouge, Houmiri
Peru	:	Quinilla colorado
Suriname	:	Basra bolletrie, Blakaberi, Tawanonero
Venezuela	:	Nina
International trade name	:	Chanul
Distribution	:	Tropical South America
Tree description		
Length of the bole	:	18-20m; height of tree: 20-40m
Diameter	:	0.5-0.9m, sometimes up to 1.2m
Shape of the log	:	straight, cylindrical; base swollen
Wood description		
Sapwood	:	not clearly distinct, light purplish rose grey
Heartwood	:	light purplish rose brown to purplish red brown
Grain	:	straight to interlocked
Texture	:	medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.10
Air-dry density at 12% (g/cm^3)	:	0.95
Basic specific gravity	:	0.81
Total tangential shrinkage (%)	:	9.5
Total radial shrinkage (%)	:	5.7
Total volumetric shrinkage (%)	:	17.6

Mechanical properties

Bending strength at 12% (N/mm^2)	:	168
Modulus of elasticity at 12% (N/mm^2)	:	18800
Crushing strength at 12% (N/mm^2)	:	86

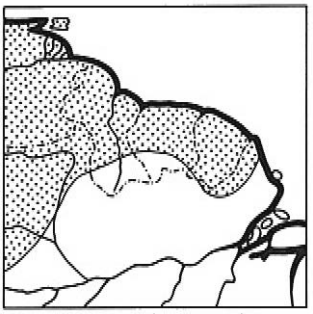
Processing

Sawing	:	power required blunting effect: moderate
Drying	:	a moderate rate to reduce degrade is recommended risks of distortion: more or less high risks of checking: slight casehardening may also occur
Machining	:	power required; tendency to chipped grain in planing in the presence of highly interlocked grain
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good
Veneering	:	sometimes sliced

Natural durability

Resistance to decay	:	moderate (brown rot) to very good (white rot)
Resistance to termites	:	good
Resistance to insects of dry wood	:	good

Treatability	:	poor
Uses	:	heavy construction; industrial flooring; parquet flooring; furniture; hydraulic works (fresh water); bridges; veneer



31. *Hyeronima alchorneoides*

Synonym	:	*Hyeronima laxiflora* (Tul.) Muell.Arg.
Family	:	Euphorbiaceae
Vernacular names		
Guyana	:	Napo, Suradan
Belize	:	Garay
Brazil	:	Aricurana, Sangue-de-bio, Urucurana
Colombia	:	Cargamento, Casaco
Costa Rica	:	Pilon
Ecuador	:	Mascare
Honduras	:	Curtidor
Nicaragua	:	Nancito
Panama	:	Pantano
Suriname	:	Piento-bolletrie, Suradanni
Venezuela	:	Carne asada, Trompillo
International trade name	:	Pilon
Distribution	:	Central and Tropical South America
Tree description		
Length of the bole	:	18-21m; height of tree: 20-35m
Diameter	:	usually 0.5-0.7m, may reach 0.9m or more
Shape of the log	:	straight and cylindrical with little taper, and with spreading rounded buttresses
Wood description		
Sapwood	:	not clearly distinct, greyish pink (2-5cm)
Heartwood	:	pale reddish brown to very dark brown
Grain	:	interlocked
Texture	:	medium to coarse

Technological characteristics

Physical properties

Green density (g/cm^3)	:	1.00-1.10
Air-dry density at 12% (g/cm^3)	:	0.74-0.85
Basic specific gravity	:	0.60-0.67
Total tangential shrinkage (%)	:	11.7
Total radial shrinkage (%)	:	5.4
Total volumetric shrinkage (%)	:	17.0

Mechanical properties

Bending strength at 12% (N/mm^2)	:	125
Modulus of elasticity at 12% (N/mm^2)	:	15600
Crushing strength at 12% (N/mm^2)	:	66

Processing

Sawing	:	easy
Drying	:	moderately difficult; slow drying and care are required kiln schedules similar to those of white oak (*Quercus alba*) are suggested with attention paid to honeycombing and collapse risks of distortion: moderate risks of checking: moderate possible risk of casehardening, collapse and honey combing
Machining	:	not difficult except in planing because of interlocked grain
Gluing	:	good
Nailing	:	good holding of nails; pre-boring necessary
Finishing	:	filling is recommended

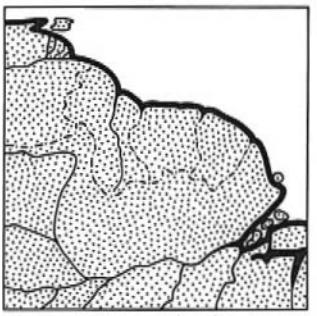
Natural durability

Resistance to decay	:	moderate to good
Resistance to termites	:	moderate
Resistance to insects of dry wood	:	poor

Treatability	:	poor
Uses	:	fine furniture; interior trim; boat construction; decorative veneer; heavy construction; flooring; joinery; turnery; sleepers

32 ***Hymenaea courbaril*** L. **Locust**

32a ***Hymenaea oblongifolia*** Huber **Locust**



32. *Hymenaea courbaril*

32a. *Hymenaea oblongifolia*

Family	:	Leguminosae (Caesalpinioideae)
Vernacular names		
Guyana	:	Kawanari, Locust, Moire, Not, Simiri (*H. oblongifolia*), Stinking toe (*H. courbaril*)
Brazil	:	Copal, Copinol, Jatai, Jatoba, Jutai (with qualifying adjectives)
Central America	:	Cuapinol, Guapinol
Colombia	:	Algarrobo, Nazareno
French Guiana	:	Courbaril, Loka
Suriname	:	Locus, Loksi, Rode lokus
Venezuela	:	Algarrobo, Corobore, Jatahy
West Indies	:	Caguairan, Copalier
International trade name	:	Courbaril (32, 32a), Jatoba (32, 32a)
Distribution	:	Central and Tropical South America, also the Caribbean
Tree description		
Length of the bole	:	18-25m; height of tree: 30-45(-50)m
Diameter	:	0.5-1.2m, occasionally to 1.5m
Shape of the log	:	straight, cylindrical; base more or less straight or buttressed
Wood description		
Sapwood	:	distinct, white to cream white (6-12cm)
Heartwood	:	light brown to purplish brown or orange brown with dark brown veins
Grain	:	generally straight, occasionally roey
Texture	:	medium

Technological characteristics

Physical properties	:	*H. courbaril*
Green density (g/cm^3)	:	1.10
Air-dry density at 12% (g/cm^3)	:	0.88
Basic specific gravity	:	0.77
Total tangential shrinkage (%)	:	6.8
Total radial shrinkage (%)	:	3.4
Total volumetric shrinkage (%)	:	11.2
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	172
Modulus of elasticity at 12% (N/mm^2)	:	18500
Crushing strength at 12% (N/mm^2)	:	84

Processing

Sawing : power required
blunting effect: moderate
(for high production the use of stellite saw is recommended)

Drying : U.S. kiln schedule T3-C2 for 25-38 mm (4/4 to 6/4) stock and T3-C1 for 50 mm (8/4) stock; British schedule C (25 mm); or kiln schedule for 41 mm listed below
risks of distortion: very slight
risks of checking: very slight
movement in service low to medium

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	40	38	88
50	44	40	78
40	48	42	70
30	52	43	58
20	56	44	50
15	60	44	40

Machining	:	power required; special tools recommended
Gluing	:	correct only for interior purposes
Nailing	:	good holding of nails; pre-boring necessary
Finishing	:	good
Veneering	:	excellent for slicing but not suitable for peeling because of hardness

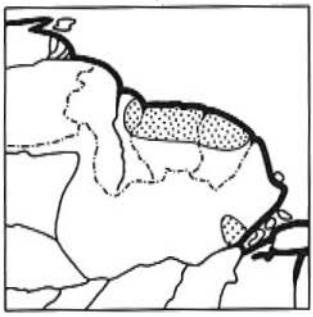
Natural durability

Resistance to decay	:	moderate to very good
Resistance to termites	:	very good
Resistance to insects of dry wood	:	good

Treatability : poor

Uses : cabinet work; exterior and interior joinery; decorative veneer; decorative fittings; fine furniture; flooring; stairs; brush backs; turnery; arched articles; sleepers

33 *Hymenolobium flavum* Kleinh. **Koraroballi**



33. *Hymenolobium flavum*

Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Atoritan, Darina, Kaserena, Koraroballi, Kotik, Mabinanero
French Guiana	:	Gullikiabicci, Saint Martin gris, Saint Martin jaune
Suriname	:	Erejoeroe, Liadiadan koleroe, Makka kabes
International trade name	:	Angelim
Distribution	:	The Guianas
Tree description		
Length of the bole	:	21-24m; height of tree: 20-35(-50)m
Diameter	:	0.30-0.65(-1)m
Shape of the log	:	cylindrical, base buttressed, usually branched and concave
Wood description		
Sapwood	:	not clearly distinct, light cream to light brown
Heartwood	:	dark yellow brown to light brown
Grain	:	straight to interlocked
Texture	:	coarse

The following data are based on *Hymenolobium excelsum* Ducke which is similar to *Hymenolobium flavum* in appearance and technical properties.

Technological characteristics		
Physical properties	:	*H. excelsum*
Green density (g/cm^3)	:	1.21
Air-dry density at 12% (g/cm^3)	:	0.75
Basic specific gravity	:	0.63
Total tangential shrinkage (%)	:	7.1
Total radial shrinkage (%)	:	4.4
Total volumetric shrinkage (%)	:	10.2

Mechanical properties

Bending strength at 12% (N/mm^2)	:	121
Modulus of elasticity at 12% (N/mm^2)	:	14135
Crushing strength at 12% (N/mm^2)	:	62

Processing

Drying	:	moderately difficult to air-season; fast to moderate rate; slight checking
Machining	:	easy
Gluing	:	easy
Finishing	:	smooth

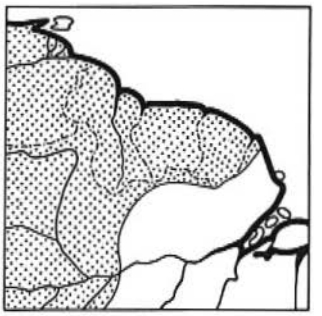
Natural durability

Resistance to decay	:	very good to good

Treatability : moderate

Uses : heavy construction; panelling; turnery; boxes and crates; furniture components

34 ***Inga alba*** (Sw.) Willd. **Maporokon**



34. *Inga alba*

Family	:	Leguminosae (Mimosoideae)
Vernacular names		
Guyana	:	Kurang, Kwari, Kwariye, Maporokon, Yokar
Brazil	:	Inga
French Guiana	:	Abonkini, Apokonion, Bois pagode, Bougouni, Lebioucko
Suriname	:	Aboonkini, Prokonie
Venezuela	:	Bunzquillo, Guamo
International trade name	:	Inga
Distribution	:	The Guianas, Amazonian Venezuela and Brazil
Tree description		
Length of the bole	:	15-18m; height of tree: 20-35m
Diameter	:	0.35-0.75m
Shape of the log	:	straight and cylindrical; base buttressed
Wood description		
Sapwood	:	not distinct from the heartwood
Heartwood	:	pinkish brown with occasionally darker streaks or zones of straw in colour
Grain	:	straight to wavy or interlocked
Texture	:	coarse
Remark	:	green wood has a fragrant odour
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	0.90-1.00
Air-dry density at 12% (g/cm^3)	:	0.67
Basic specific gravity	:	0.57
Total tangential shrinkage (%)	:	6.9
Total radial shrinkage (%)	:	3.4
Total volumetric shrinkage (%)	:	12.3

Mechanical properties

Bending strength at 12% (N/mm^2)	:	95
Modulus of elasticity at 12% (N/mm^2)	:	11800
Crushing strength at 12% (N/mm^2)	:	53

Processing

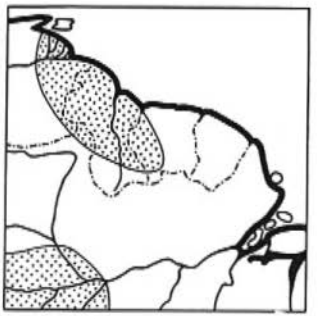
Sawing	:	easy blunting effect: very slight
Drying	:	rapid but a careful stacking is required risks of distortion: more or less high risks of checking: slight
Machining	:	not difficult
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good
Veneering	:	interesting for peeling

Natural durability

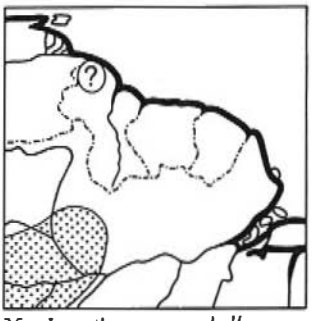
Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability	:	poor to moderate
Uses	:	utility plywood (interior plies); boxes and crates; interior joinery; cheap furniture; light and heavy construction; carpentry

35 ***Iryanthera lancifolia*** Ducke **Kirikaua**
35a ***Iryanthera macrophylla*** Warb. **Kirikaua**



35. *Iryanthera lancifolia*



35a. *Iryanthera macrophylla*

Family	:	Myristicaceae
Vernacular names		
Guyana	:	Kirikaua, Marbuk, Swamp kirikaua, Weputana
Brazil	:	Ucuhuba-rana
Suriname	:	Soewana, Swanna
International trade name	:	Kirikaua (35, 35a)
Distribution	:	The Guianas and Amazonian Brazil
Tree description		
Length of the bole	:	15-18m; height of tree: 20-27m
Diameter	:	0.35-0.60m
Shape of the log	:	moderately straight, base often swollen
Wood description		
Sapwood	:	not clearly distinct, light brown, often variable in width
Heartwood	:	light pinkish-cinnamon or oatmeal to light chestnut or dark brown
Grain	:	straight to slightly interlocked
Texture	:	fine to medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	0.85
Air-dry density at 12% (g/cm^3)	:	0.59
Basic specific gravity	:	0.49
Total tangential shrinkage (%)	:	10.2
Total radial shrinkage (%)	:	5.5
Total volumetric shrinkage (%)	:	14.0

Mechanical properties

Bending strength at 12% (N/mm²)	:	87
Modulus of elasticity at 12% (N/mm²)	:	15031
Crushing strength at 12% (N/mm²)	:	48

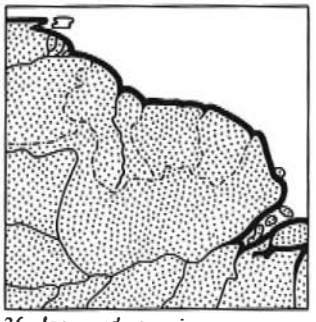
Processing

Sawing	:	easy
Drying	:	moderately difficult risks of distortion: slight risks of checking: slight
Machining	:	good
Veneering	:	good

Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Uses	:	millwork; veneer; turnery; plywood; furniture; general construction; boxes and crates



36. *Jacaranda copaia*

Family	:	Bignoniaceae
Vernacular names		
Guyana	:	Aku, Futui, Kopaia, Pasa, Phootee
Argentina	:	Caroba, Jacaranda, Tarco
Bolivia	:	Tinto blanco
Brazil	:	Caroba (Amazonas region), Caroba do mato, Marupa falso, Para-para (Para region)
Central America	:	Jacaranda, Palo de buba, Samarapa
Colombia	:	Chingale, Pavito
Ecuador	:	Arabisco, Kuiship
French Guiana	:	Bois pian, Copaia, Faux simarouba, N'Gobaya, Yachimambo
Peru	:	Chicharra caspi, Ishtapi, Kuiship
Suriname	:	Futi, Foetei, Gocbaja
Venezuela	:	Abey, Cupay, Gobaja, Gualanda
International trade name	:	Gobaja, Para-para
Distribution	:	Central and South America
Tree description		
Length of the bole	:	18-24m; height of tree: 20-30(-43)m
Diameter	:	0.3-0.8(-1)m
Shape of the log	:	generally cylindrical, more or less straight; base swollen sometimes with root spurs
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	yellowish white or pinkish white with streaks
Grain	:	straight
Texture	:	medium to coarse

Technological characteristics

Physical properties

Green density (g/cm³)	:	1.05
Air-dry density at 12% (g/cm³)	:	0.43
Basic specific gravity	:	0.36
Total tangential shrinkage (%)	:	8.5
Total radial shrinkage (%)	:	5.7
Total volumetric shrinkage (%)	:	14.6

Mechanical properties

Bending strength at 12% (N/mm²)	:	60
Modulus of elasticity at 12% (N/mm²)	:	8900
Crushing strength at 12% (N/mm²)	:	31

Processing

Sawing : easy; presence of more or less important internal stresses; risk of splitting; woolly surfaces
blunting effect: very slight

Drying : easy and rapid
risks of distortion: very slight
risks of checking: very slight
movement in service medium to large
kiln schedule for 41 mm listed below

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	41	94
30	42	41	94
20	42	39	82
15	48	43	74
10	54	46	65

Machining : easy, but the cutters have to be kept sharp to avoid woolliness

Gluing : good

Nailing : poor holding of nails

Finishing : good

Veneering : interesting for slicing and for peeling

Natural durability

Resistance to decay : poor

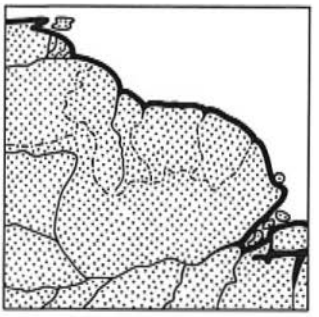
Resistance to termites : poor

Resistance to insects of dry wood : poor

Treatability : good

Uses : plywood (core); blockboard; moulding; boxes and crates; matches; toys; interior joinery; cheap furniture; broom sticks

37 *Laetia procera* (Poeppig) Eichler **Warakairo**



37. *Laetia procera*

Family	:	Flacourtiaceae
Vernacular names		
Guyana	:	Bastard kabukalli, Murewa, Warakairo, Watuwai
Brazil	:	Apijo, Piria, Tuchaua
Ecuador	:	Marcelo, Sani caspi
French Guiana	:	Bois Jacquot, Bois Marie, Kaiman oudou, Loboashou
Suriname	:	Kaiman-oedoe, Moelawa, Pientokopie, Warakajaro
Venezuela	:	Caimito cimarron, Cuajillo
International trade name	:	Warakairo
Distribution	:	Tropical South America
Tree description		
Length of the bole	:	21-25m; height of tree: 20-30(-40)m
Diameter	:	0.45-0.60m, may reach 0.80m
Shape of the log	:	straight, cylindrical, slender; base swollen or with root spurs; heart often eccentric
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	yellowish white to yellowish light beige
Grain	:	frequently but generally slightly interlocked
Texture	:	fine to medium
Technological characteristics		
Physical properties		
Air-dry density at 12% (g/cm^3)	:	0.84
Basic specific gravity	:	0.71
Total tangential shrinkage (%)	:	13.2
Total radial shrinkage (%)	:	8.2
Total volumetric shrinkage (%)	:	20.4

Mechanical properties

Bending strength at 12% (N/mm^2)	:	125
Modulus of elasticity at 12% (N/mm^2)	:	13370
Crushing strength at 12% (N/mm^2)	:	73

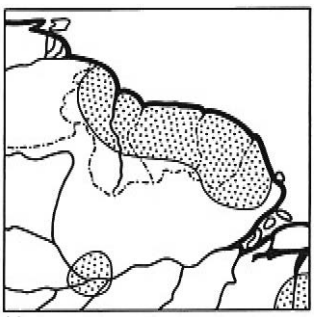
Processing

Sawing	:	easy; presence of internal stresses; risk of splitting blunting effect: moderate
Drying	:	moderate to rapid; strong tendency to check, cup, twist and caseharden
Machining	:	difficult to plane in the presence of highly interlocked grain
Nailing	:	good
Finishing	:	good

Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability	:	moderate
Uses	:	interior joinery; carpentry; flooring; plywood (interior)



38. *Lecythis confertiflora*

Synonym	:	*Eschweilera confertiflora* A.C. Smith
Family	:	Lecythidaceae
Vernacular names		
Guyana	:	Wirimiri
Brazil	:	Ripeiro vermelho
French Guiana	:	Mahot blanc, Wetl loabl
International trade name	:	Wirimiri
Distribution	:	The Guianas and Brazil
Tree description		
Length of the bole	:	15-18m; height of tree: 20-35m
Diameter	:	0.4-0.7m
Shape of the log	:	cylindrical, base straight or swollen, unbuttressed
Wood description		
Sapwood	:	distinct, light brown to yellow brown; sometimes with few dark streaks
Heartwood	:	dark red brown
Grain	:	straight
Texture	:	fine to medium

The following data are based on *Lecythis pisonis* Cambessedes and *Eschweilera tenax* (Moritz ex O. Berg) Miers which are similar to *Lecythis confertiflora* in appearance and technical properties.

Technological characteristics			
Physical properties	:	*L. pisonis*	*E. tenax*
Green density (g/cm^3)	:	1.28	1.07
Air-dry density at 12% (g/cm^3)	:	1.06	0.77
Basic specific gravity	:	0.88	0.62
Total tangential shrinkage (%)	:	7.6	6.4
Total radial shrinkage (%)	:	6.0	3.4
Total volumetric shrinkage (%)	:	13.4	10.9

Mechanical properties

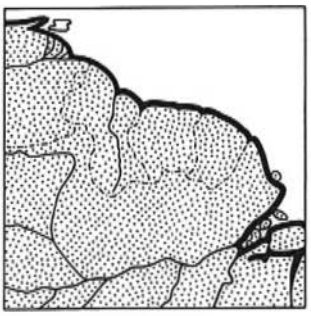
Bending strength at 12% (N/mm²)	:	190	100
Modulus of elasticity at 12% (N/mm²)	:	23300	12135
Crushing strength at 12% (N/mm²)	:	91	44

Processing

Sawing	:	power required; rather difficult blunting effect: relatively high due to silica content and hardness
Drying	:	moderately difficult to easy to air-season; generally little defect with moderate drying rates; slight twist, end checking and caschardening
Machining	:	moderately difficult due to silica and hardness; special tools recommended
Nailing	:	pre-boring necessary
Finishing	:	good
Veneering	:	can be sliced

Natural durability

Resistance to decay	:	good to very good (white rot); very good (brown rot)
Resistance to termites	:	moderate
Resistance to insects of dry wood	:	good
Remark	:	resistant to moderately resistant to marine borers
Treatability	:	poor
Uses	:	heavy construction; tool handles; sleepers; heavy flooring; marine construction



39. *Lecythis corrugata*

Synonym	:	*Eschweilera corrugata* (Poit.) Miers
Family	:	Lecythidaceae
Vernacular names		
Guyana	:	Wina, Wina kakaralli
Brazil	:	Matamata, Morrao
French Guiana	:	Canari macaque, Mahot rouge
Suriname	:	Liaroekakaralli, Oemanbarklak, Tamoene
Venezuela	:	Cabullo, Guacharaco, Kumaiteka, Tabari
International trade name	:	Wina
Distribution	:	The Gulanas, Amazonian Brazil and Venezuela
Tree description		
Length of the bole	:	12-18m; height of tree: 20-35m
Diameter	:	0.5m, may reach 0.9m
Shape of the log	:	straight, cylindrical, slender; unbuttressed
Wood description		
Sapwood	:	clearly distinct, beige or yellowish white
Heartwood	:	red brown with lighter veins
Grain	:	straight
Texture	:	rather fine to medium
Technological characteristics		
Physical properties		
Air-dry density at 12% (g/cm^3)	:	0.86 - 0.96*
Basic specific gravity	:	0.79
Total tangential shrinkage (%)	:	9.8 - 11.7*
Total radial shrinkage (%)	:	6.7 - 7.4*
Total volumetric shrinkage (%)	:	16.9

* Data from two different reference sources

Mechanical properties

Bending strength at 12% (N/mm²)	:	136	-	157*
Modulus of elasticity at 12% (N/mm²)	:	16700	-	17640*
Crushing strength at 12% (N/mm²)	:	59	-	78*

Processing

Sawing	:	power required; rather difficult blunting effect: high (silica)
Drying	:	moderately difficult; requires care
Machining	:	rather difficult because of hardness and silica content; special tools recommended
Nailing	:	pre-boring necessary
Finishing	:	good
Veneering	:	can be sliced

Natural durability

Resistance to decay	:	moderate (white rot) to good (brown rot)
Resistance to termites	:	mediocre to moderate
Resistance to insects of dry wood	:	good

Treatability : poor

Uses : foundation timbers; beams; heavy carpentry (construction); heavy flooring; tool handles; sporting goods; frame construction; exterior joinery; sliced veneer; stairs; ship keels and beams; sleepers

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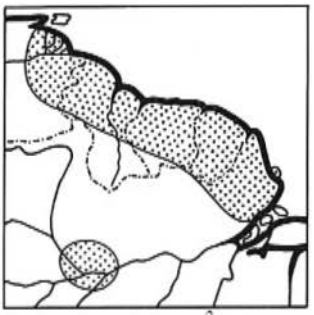
* Data from two different reference sources



40. *Lecythis zabucajo*

Synonym	:	*Lecythis davisii* Sandw.
Family	:	Lecythidaceae
Vernacular names		
Guyana	:	Kumc, Monkey pot, Wadaduri
Brazil	:	Castanha sapucala, Sapucala
French Guiana	:	Canari macaque, Kouatapatou, Marmite de singe, Quatele, Zabucalo
Suriname	:	Kwatapatoe
Venezuela	:	Coco de mono, Tinajito
International trade name	:	Sapucaia
Distribution	:	The Guianas, Eastern Venezuela, and Central and West Amazonia
Tree description		
Length of the bole	:	height of tree: 35-55m
Diameter	:	0.70-0.91(-1.5m)
Shape of the log	:	tapering, scalloped in lower part; base swollen or buttressed
Wood description		
Sapwood	:	distinct, cream to yellow white
Heartwood	:	red brown
Grain	:	straight
Texture	:	rather fine to medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.25
Air-dry density at 12% (g/cm^3)	:	1.02
Basic specific gravity	:	0.82
Total tangential shrinkage (%)	:	10.6
Total radial shrinkage (%)	:	6.5
Total volumetric shrinkage (%)	:	17.6

Mechanical properties

Bending strength at 12% (N/mm^2)	:	187
Modulus of elasticity at 12% (N/mm^2)	:	22369
Crushing strength at 12% (N/mm^2)	:	93

Processing

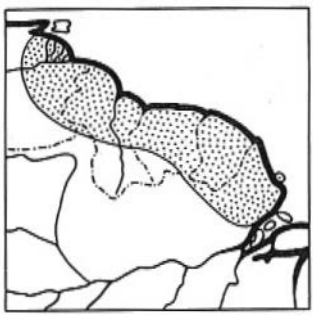
Sawing	:	power required; rather difficult blunting effect: relatively high due to silica and hardness
Drying	:	easy to air-season; generally few defects with moderate drying rates
Machining	:	moderately difficult due to silica and hardness; special tools recommended
Nailing	:	pre-boring necessary
Finishing	:	good
Veneering	:	can be sliced

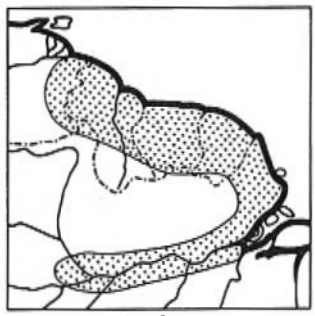
Natural durability

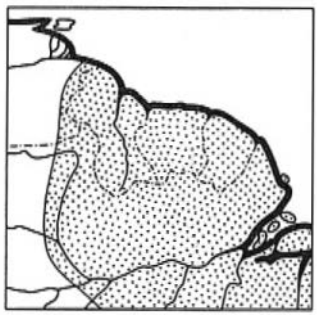
Resistance to decay	:	very good
Resistance to termites	:	moderate
Resistance to insects of dry wood	:	good

Remark	:	resistant to moderately resistant to marine borers
Treatability	:	poor
Uses	:	heavy construction; tool handles; sleepers; heavy flooring; marine construction

41 ***Licania alba*** (Bernoulli) Cuatr. **Kautaballi**
41a ***Licania laxiflora*** Fritsch **Kauta**
41b ***Licania majuscula*** Sagot **Kautaballi**


41. *Licania alba*


41a. *Licania laxiflora*


41b. *Licania majuscula*

Synonym (41)	:	*Licania venosa* Rusby
Family	:	Chrysobalanaceae
Vernacular names		
Guyana	:	Countaballi, Counter, Farsha *(L. majuscula)*, Kauada, Kaudanaro, Kauta, *(L. laxiflora)*, Kautaballi *(L. alba, L. majuscula)*, Maiuarai *(L. alba)*, Tokor
French Guiana	:	Bois gaulette *(L. majuscula)*, Gri-gri, Koko
Suriname	:	Anaura, Bergkwepi, Foengoe, Vonkhout
Venezuela	:	Hierrito
International trade name	:	Kauta (41a), Kautaballi (41, 41b)
Distribution	:	The Guianas, Venezuela, and part of Amazonian Brazil
Tree description		
Length of the bole	:	15-18m; height of tree: 24-35m
Diameter	:	0.4-0.6m
Shape of the log	:	ordinary cylindrical; unbuttressed but often basally swollen
Wood description		
Sapwood	:	distinct, tan
Heartwood	:	yellowish brown to brown or dark brown sometimes with a reddish tinge
Grain	:	straight
Texture	:	fine

Technological characteristics

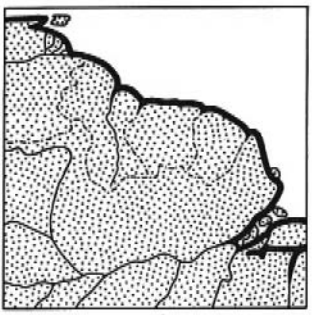
Physical properties	:	*L. majuscula*
Green density (g/cm³)	:	1.10-1.20
Air-dry density at 12% (g/cm³)	:	1.03
Basic specific gravity	:	0.90
Total tangential shrinkage (%)	:	10.8
Total radial shrinkage (%)	:	7.1
Total volumetric shrinkage (%)	:	16.5
Mechanical properties		
Bending strength at 12% (N/mm²)	:	173
Modulus of elasticity at 12% (N/mm²)	:	17400
Crushing strength at 12% (N/mm²)	:	84

Processing

Sawing	:	power required blunting effect: high (silica)
Drying	:	air-drying reported easy to moderately difficult risks of distortion: rated as slight risks of checking: rated as slight
Machining	:	difficulties due to hardness and silica content; special tools are recommended
Nailing	:	pre-boring necessary
Finishing	:	good

Natural durability

Resistance to decay	:	poor to moderate
Resistance to termites	:	good
Resistance to insects of dry wood	:	good
Remark	:	resistant to marine borers
Treatability	:	generally moderate
Uses	:	heavy construction (above ground); shingles; house framing; charcoal; underwater marine construction



42. *Licaria cannella*

Synonym	:	*Acroclidium cannella* Meisner *Licaria cayennensis* (Meisner) Kosterm.
Family	:	Lauraceae
Vernacular names		
Guyana	:	Brown silverballi, Kamarai, Kharemero shiruaballi, Tiniari, Wabaima
Brazil	:	Lauro chumbo, Preclosa
French Guiana	:	Bois canelle, Cedre canelle
Suriname	:	Kanceihart, Kancel-pisie, Wajaaka
International trade name	:	Brown silverballi, Kaneelhart
Distribution	:	Northern South America
Tree description		
Length of the bole	:	15-24m; height of tree: 20-35(40)m
Diameter	:	0.35-0.75(-1.10)m
Shape of the log	:	cylindrical; base buttressed
Wood description		
Sapwood	:	not clearly distinct, light yellow brown (2-5cm)
Heartwood	:	yellow brown turning to dark brown with red or violet tinge on exposure
Grain	:	straight to slightly interlocked
Texture	:	fine to medium
Remark	:	green wood has a fragrant odour

Technological characteristics

Physical properties

Green density (g/cm³)	:	1.30
Air-dry density at 12% (g/cm³)	:	1.11
Basic specific gravity	:	1.00
Total tangential shrinkage (%)	:	7.1
Total radial shrinkage (%)	:	6.0
Total volumetric shrinkage (%)	:	12.7

Mechanical properties

Bending strength at 12% (N/mm²)	:	226
Modulus of elasticity at 12% (N/mm²)	:	26000
Crushing strength at 12% (N/mm²)	:	120

Processing

Sawing	:	power required blunting effect: moderate
Drying	:	air-drying variable, easy to moderately difficult risks of distortion: slight risks of checking: slight noticeable risk of casehardening
Machining	:	rather difficult on account of high density; tends to splinter in boring
Gluing	:	care is required
Nailing	:	pre-boring necessary
Finishing	:	good

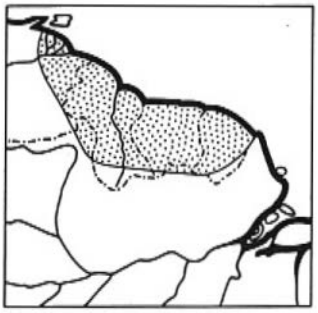
Natural durability

Resistance to decay	:	very good
Resistance to termites	:	good
Resistance to insects of dry wood	:	poor

Treatability : poor

Uses : heavy construction; flooring; furniture; boat building (planking); bridge decking; turnery; musical instruments

43 *Loxopterygium sagotii* Hook.f. **Hububalli**



43. *Loxopterygium sagotii*

Family	:	Anacardiaceae
Vernacular names		
Guyana	:	Aupar, Hububalli, Kwipari, Kwipariye
Suriname	:	Hoebobballi, Kooelpialli, Slangenhout, Suriname snakewood
Venezuela	:	Onotillo, Ormata, Picaton
International trade name	:	Hububalli, Slangenhout
Remark	:	this species is called Slangenhout in Suriname and is not the Snakewood of Guyana, which is *Brosimum guianense* (Aublet) Huber
Distribution	:	The Guianas and Eastern Venezuela
Tree description		
Length of the bole	:	15-20m; height of tree: 30-35m
Diameter	:	0.4-0.9m
Shape of the log	:	fairly well-formed, straight; base buttressed
Wood description		
Sapwood	:	more or less distinct, pale yellow or light grey brown (5-8 cm)
Heartwood	:	light brown to red brown usually attractively figured with narrow to wide darker stripes and streaks
Grain	:	straight, sometimes interlocked or wavy
Texture	:	medium
Remark	:	dark oil specks on tangential surfaces (gum ducts)

Technological characteristics

Physical properties

Green density (g/cm³)	:	0.95
Air-dry density at 12% (g/cm³)	:	0.68
Basic specific gravity	:	0.56
Total tangential shrinkage (%)	:	7.2
Total radial shrinkage (%)	:	3.4
Total volumetric shrinkage (%)	:	11.1

Mechanical properties

Bending strength at 12% (N/mm²)	:	94
Modulus of elasticity at 12% (N/mm²)	:	12060
Crushing strength at 12% (N/mm²)	:	51

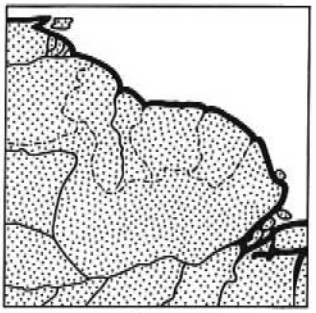
Processing

Sawing	:	easy
Drying	:	moderately difficult and slow risks of distortion: moderate risks of checking: moderate
Machining	:	difficulties in the presence of highly interlocked grain
Gluing	:	requires care
Nailing	:	good
Finishing	:	good with smooth surface, but the oily gum may cause some difficulties in varnishing
Veneering	:	slices and peels

Natural durability

Resistance to decay	:	moderate to good
Resistance to termites	:	moderate
Resistance to insects of dry wood	:	poor

Treatability	:	poor
Uses	:	fine furniture; cabinet work; carpentry; flooring; sliced veneer; interior trim; joinery; turnery; plywood



44. *Manilkara bidentata*

Family	:	Sapotaceae
Vernacular names		
Guyana	:	Balata, Balata burue, Beefwood, Bulletwood, Bully tree, Iriar, Kobero, Purue
Brazil	:	Macaranduba, Maparajuba, Paraju
Colombia	:	Balata, Nispero, Trapichero
French Guiana	:	Balata franc, Balata gomme, Balata rouge
Peru	:	Pamashto, Quinilla colorada
Suriname	:	Balata, Bolletrie, Paardevleeshout
Venezuela	:	Balata, Massaranduba, Pendare
West Indies	:	Acana, Nispero, Sapadilla
International trade name	:	Macaranduba
Distribution	:	Tropical South America and West Indies
Tree description		
Length of the bole	:	20- 25m; height of tree: 30-40m
Diameter	:	0.5-0.9(-1.5)m
Shape of the log	:	straight, cylindrical, slender; old trees may present buttresses up to 1m high
Wood description		
Sapwood	:	distinct, pale brown to pink beige (3-5cm)
Heartwood	:	light to dark red brown, slightly purplish veined
Grain	:	straight, occasionally wavy or interlocked
Texture	:	fine
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.30
Air-dry density at 12% (g/cm^3)	:	1.10
Basic specific gravity	:	0.95
Total tangential shrinkage (%)	:	9.6
Total radial shrinkage (%)	:	6.6
Total volumetric shrinkage (%)	:	16.4

Mechanical properties

Bending strength at 12% (N/mm^2)	:	190
Modulus of elasticity at 12% (N/mm^2)	:	19310
Crushing strength at 12% (N/mm^2)	:	88

Processing

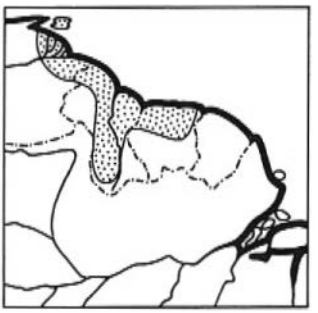
Sawing	:	power required; possible internal stresses blunting effect: moderate
Drying	:	difficult, must be handled slowly and carefully U.S. kiln schedule T1-B1 for 25-38 mm (4/4 to 6/4) stock or kiln schedule for 41 mm listed below risks of distortion: high risks of checking: high risk of casehardening movement in service large

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	42	100
50	42	40	88
20	43	40	83
15	52	46	71

Machining	:	power required, but moderately easy despite high density; special tools recommended
Gluing	:	delicate, requires care
Nailing	:	pre-boring necessary, good holding of nails
Finishing	:	good
Veneering	:	can be sliced
Remark	:	dust reported irritant

Natural durability

Resistance to decay	:	good (brown rot) to very good (white rot)
Resistance to termites	:	very good
Resistance to insects of dry wood	:	good
Treatability	:	poor
Uses	:	heavy construction; hydraulic works; sleepers; bridges; flooring; carpentry; stairs; violin bows; naval construction; billiard cue butts; cutlery; furniture components



45. *Mora excelsa*

Family	:	Leguminosae (Caesalpinioideae)
Vernacular names		
Guyana	:	Mora, Mora-yek, Parakaua
Brazil	:	Pracuuba
French Guiana	:	Mora
Suriname	:	Mora, Mora-yek, Peto
Trinidad	:	Belbarbre, Mora, Palakoca
Venezuela	:	Mora de Guyana, Peto
International trade name	:	Mora
Distribution	:	Venezuela to Suriname and Trinidad
Tree description		
Length of the bole	:	15-24m; height of tree: 20-40(-50)m
Diameter	:	0.6-0.9(-1.2)m
Shape of the log	:	usually straight, fairly well-formed but sometimes flattened; base buttressed
Remark	:	large trees are often hollow
Wood description		
Sapwood	:	distinct, light yellowish grey (5-15cm)
Heartwood	:	dark brown, reddish brown or yellowish red brown with white or brown streaks
Grain	:	straight to interlocked, very variable
Texture	:	medium to coarse
Remark	:	slightly sour odour; rather harsh to the touch

Technological characteristics

Physical properties

Green density (g/cm^3)	:	1.30
Air-dry density at 12% (g/cm^3)	:	0.99
Basic specific gravity	:	0.78
Total tangential shrinkage (%)	:	9.5
Total radial shrinkage (%)	:	5.8
Total volumetric shrinkage (%)	:	17.6

Mechanical properties

Bending strength at 12% (N/mm^2)	:	149
Modulus of elasticity at 12% (N/mm^2)	:	21020
Crushing strength at 12% (N/mm^2)	:	81

Processing

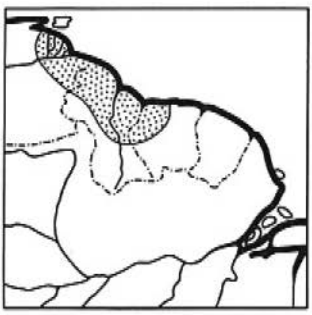
Sawing	:	power required; fairly difficult; tendency to spring blunting effect: moderate to high
Drying	:	difficult; a slow drying and careful piling are recommended to reduce degrade U.S. kiln schedule T2-C2 for 25-38 mm (4/4 to 6/4) stock and T2-C1 for 50 mm (8/4) stock or British schedule B (25 mm) risks of distortion: more or less high risks of checking: more or less high
Machining	:	difficulties due to hardness and highly interlocked grain (pick up and chipped grain)
Gluing	:	special precaution needed
Nailing	:	pre-boring necessary; good holding of nails;
Finishing	:	good

Natural durability

Resistance to decay	:	good (white rot) to very good (brown rot)
Resistance to termites	:	good to very good
Resistance to insects of dry wood	:	good

Treatability : poor

Uses : sleepers; heavy construction; bridge decking; planking; heavy carpentry; industrial flooring; joinery; vehicle bodies; boat building (ribs, stem, knees, framing)



46. *Mora gonggrijpii*

Family	:	Leguminosae (Caesalpinioideae)
Vernacular names		
Guyana	:	Morabukea, Parakwai
Suriname	:	Moraboekea, Mora-boekeja
Venezuela	:	Mora, Morera
International trade name	:	Morabukea
Distribution	:	Venezuela to Suriname
Tree description		
Length of the bole	:	18-24m; height of tree: 20-45(-50)m
Diameter	:	0.4-0.8(-1.5)m
Shape of the log	:	cylindrical; base usually buttressed
Wood description		
Sapwood	:	distinct, pale pinkish brown (up to 15cm)
Heartwood	:	pinkish brown or reddish brown to dark brown with paler streaks
Grain	:	straight, often interlocked, sometimes irregular or wavy
Texture	:	rather fine to moderately coarse
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.30
Air-dry density at 12% (g/cm^3)	:	1.03
Basic specific gravity	:	0.78
Total tangential shrinkage (%)	:	10.2
Total radial shrinkage (%)	:	6.3
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	176
Modulus of elasticity at 12% (N/mm^2)	:	21910
Crushing strength at 12% (N/mm^2)	:	94

Processing

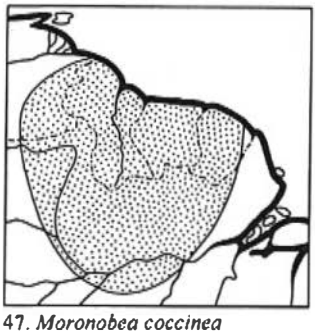
Sawing	:	power required; fairly difficult; tendency to spring blunting effect: moderate to high
Drying	:	difficult; a slow drying and careful piling are recommended to reduce degrade U.S. kiln schedule T2-C2 for 25-38 mm (4/4 to 6/4) stock and T2-C1 for 50 mm (8/4) stock or British schedule B (25 mm) risks of distortion: more or less high risks of checking: more or less high
Machining	:	difficulties due to hardness and highly interlocked grain (pick up and chipped grain)
Gluing	:	special precaution needed
Nailing	:	good holding of nails; pre-boring necessary
Finishing	:	good

Natural durability

Resistance to decay	:	good to very good
Resistance to termites	:	good to very good
Resistance to insects of dry wood	:	good

Treatability	:	poor

Uses	:	sleepers; heavy construction; bridge decking; planking; heavy carpentry; industrial flooring; vehicle bodies; joinery: boat building (ribs, stem, knees, framing)



47. *Moronobea coccinea*

Family	:	Guttiferae
Vernacular names		
Guyana	:	Manniballi, Morombo-rai
Brazil	:	Anani da terra firme, Bacuri de anta, Marupa
French Guiana	:	Coronobo, Manil montagne, Manil peou, Moronobo
Suriname	:	Matakkie, Parcouri-manil
International trade name	:	Manniballi
Distribution	:	The Guianas and Northern Brazil
Tree description		
Length of the bole	:	18-25m; height of tree: 30-40m
Diameter	:	0.5m-0.8m
Shape of the log	:	straight, cylindrical, slender; unbuttressed; the old trees have a swollen base
Wood description		
Sapwood	:	somewhat distinct, light yellow (3-5 cm)
Heartwood	:	light yellow brown with veins
Grain	:	generally straight, crooked and wavy in sapwood and at the limit of sapwood and heartwood
Texture	:	medium to coarse
Technological characteristics		
Physical properties		
Air-dry density at 12% (g/cm^3)	:	0.96
Basic specific gravity	:	0.88
Total tangential shrinkage (%)	:	9.4
Total radial shrinkage (%)	:	4.6
Total volumetric shrinkage (%)	:	14.9
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	161
Modulus of elasticity at 12% (N/mm^2)	:	22650
Crushing strength at 12% (N/mm^2)	:	66

Processing

Sawing : easy

Drying : requires care (air-drying under cover and end-coating); kiln-drying must be handled slowly
kiln schedule for 41 mm listed below
risks of distortion: more or less high
risks of checking: more or less high
these defects occur particularly in back sawn boards

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	40	88
50	46	42	78
40	46	41	73
30	52	46	71
25	54	47	67
20	54	46	65
15	56	46	55

Machining : easy

Gluing : good

Nailing : good holding of nails

Finishing : good

Natural durability

Resistance to decay : very good

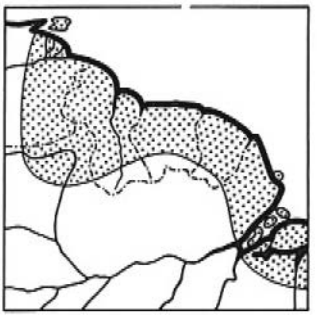
Resistance to termites : moderate

Resistance to insects of dry wood : good

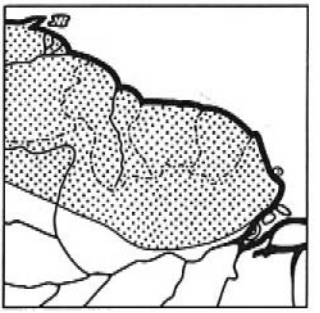
Treatability : poor

Uses : sleepers; heavy construction; exterior joinery; industrial flooring; heavy carpentry; bridge decking

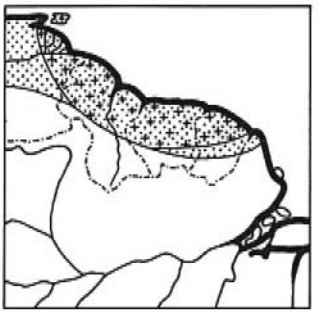
48	***Ocotea canaliculata*** (Rich.) Mez	**White silverballi**
48a	***Ocotea glomerata*** (Nees) Mez	**Kurahara silverballi**
48b	***Ocotea oblonga*** (Meisner) Mez	**Soft kereti**
48c	***Ocotea wachenheimii*** Benoist	**Hard kereti**



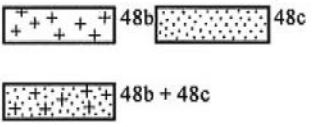
48. *Ocotea canaliculata*



48a. *Ocotea glomerata*



48b. *Ocotea oblonga*
48c. *Ocotea wachenheimii*



Family	:	Lauraceae
Vernacular names		
Guyana	:	Dolly pear (*O. glomerata*), Hard kereti (*O. wachenheimii*), Hariraro shiruaballi, Heburu, Ileng, Kurahara silverballi, Sawariskin silverballi, Soft kereti *(O. oblonga, O. wachenheimii)*, White silverballi *(O. canaliculata)*
Brazil	:	Louro
Central America	:	Aguacatillo, Laurel
Colombia	:	Amarillo, Laurel
Ecuador	:	Canelo amarillo, Jigua amarillo, Tinchi
French Guiana	:	Baaka apici, Cedre gris, Cedre noir, Licano apici *(O. glomerata)* Tingui apici *(O. wachenheimii)*, Weti apici *(O. oblonga)*
Suriname	:	Harde zwarte pisi *(O. glomerata)*, Pisi *(O. wachenheimii)*
Trinidad and Tobago	:	Laurier
Venezuela	:	Laurel
International trade name	:	Canelo (48b, 48c), Kereti (48b, 48c) , White silverballi (48, 48a)
Distribution	:	Central and Tropical South America, also the Caribbean

Tree description

Length of the bole	:	15-21m; height of tree: 20-35m
Diameter	:	0.50-0.60m, up to 1.20m *(O. canaliculata)*
Shape of the log	:	straight and cylindrical, sometimes slightly crooked *(O. wachenheimii)*; unbuttressed *(O. wachenheimii)* or buttressed to 0.50m high *(O. oblonga)* and up to 1.50m *(O. glomerata)*; base usually buttressed *(O. canaliculata)*

Wood description

Sapwood	:	more or less distinct, pinkish grey (3-6cm)
Heartwood	:	whitish beige *(O. canaliculata)*, slightly orange, ashen maroon beige *(O. glomerata)* or pale brown to straw coloured *(O. wachenheimii)*; more or less lustrous
Grain	:	generally straight or slightly interlocked
Texture	:	fairly fine to medium
Remark	:	some of the woods have a pleasant aromatic odour

Technological characteristics

		O. glomerata	*O. oblonga*
Physical properties			
Green density (g/cm³)		0.90	0.90
Air-dry density at 12% (g/cm³)	:	0.63	0.42
Basic specific gravity	:	0.55	0.36
Total tangential shrinkage (%)	:	7.8	8.2
Total radial shrinkage (%)	:	4.4	3.6
Total volumetric shrinkage (%)	:	12.2	12.5
Mechanical properties			
Bending strength at 12% (N/mm²)	:	104	72
Modulus of elasticity at 12% (N/mm²)	:	11569	9167
Crushing strength at 12% (N/mm²)	:	60	39

Processing

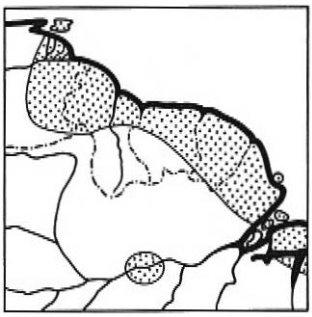
Sawing	:	easy blunting effect: very slight
Drying	:	air-drying under cover is recommended risks of distortion: more or less high risks of checking: very slight movement in service medium
Machining	:	not difficult
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good
Veneering	:	peels well

Natural durability

Resistance to decay	:	poor to moderate (according to the species)
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability : poor to good (according to the species)

Uses : interior joinery; house framing; furniture; light carpentry; moulding; boxes and crates; plywood (all the plies); decorative fittings; wainscoting; shipbuilding (planking)



49. *Ocotea rubra*

Synonym	:	*Nectandra rubra* (Mez) Allen
Family	:	Lauraceae
Vernacular names		
Guyana	:	Baaka, Determa, Teteruma, Wanu
Brazil	:	Louro gamela, Louro vermelho
French Guiana	:	Grignon franc
Suriname	:	Teteroma, Wana, Wane
International trade name	:	Determa, Louro vermelho, Wana
Distribution	:	The Guianas and Amazon Basin
Tree description		
Length of the bole	:	15-20m, up to 25m; height of tree: 25-40(-50)m
Diameter	:	0.5-1.0(-1.5)m
Shape of the log	:	cylindrical, sometimes strongly tapered, with low spreading buttresses
Wood description		
Sapwood	:	distinct, dirty yellow to greyish pink (2-6cm)
Heartwood	:	pinkish-red, becoming brown with age
Grain	:	generally straight, at times slightly irregular or interlocked
Texture	:	medium to coarse
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.00
Air-dry density at 12% (g/cm^3)	:	0.66
Basic specific gravity	:	0.57
Total tangential shrinkage (%)	:	8.8
Total radial shrinkage (%)	:	4.5
Total volumetric shrinkage (%)	:	13.6

Mechanical properties

Bending strength at 12% (N/mm²)	:	90
Modulus of elasticity at 12% (N/mm²)	:	11400
Crushing strength at 12% (N/mm²)	:	51

Processing

Sawing	:	easy blunting effect: very slight
Drying	:	very difficult to kiln-dry, must be dried slowly and carefully; moderately difficult to air-season U.S. kiln schedule T6-D2 for 25-38 mm (4/4 to 6/4) stock and T3-D1 for 50 mm (8/4) stock; British schedule E (25 mm); or kiln schedule for 41 mm listed below risks of distortion: slight risks of checking: high if rapid drying casehardening and collapse very frequent particularly for thickness > 40mm; soaking of wood at high temperature (80°C) improves the drying movement in service medium

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	60	60	100
70	47	44	84
60	47	44	84
50	47	44	84
40	47	44	84
30	58	54	80
20	58	52	72
15	68	62	75

Machining	:	not difficult
Nailing	:	medium to good holding of nails
Finishing	:	good, filling is recommended
Veneering	:	peels and slices well

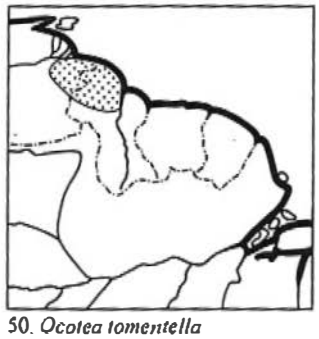
Natural durability

Resistance to decay	:	good
Resistance to termites	:	good
Resistance to insects of dry wood	:	good

Treatability : poor

Uses : furniture*; moulding; sliced veneer; shipbuilding; plywood; exterior and interior joinery*; cabinet work*; carpentry; exterior panelling; glued laminated beams; boxes and crates; outdoor furniture

* After suitable drying



50. *Ocotea tomentella*

Family	:	Lauraceae
Vernacular names		
Guyana	:	Baradan, Yanéau
International trade name	:	Baradan
Distribution	:	Guyana and Venezuela
Tree description		
Length of the bole	:	18-24m; height of tree:20-40(-45)m
Diameter	:	0.5-0.8(-1.2)m
Shape of the log	:	cylindrical, usually buttressed
Wood description		
Sapwood	:	distinct, light buff to oatmeal (1-3cm)
Heartwood	:	greenish-yellow with golden brown or grey overtones
Grain	:	straight to interlocked or roey, often ribbon-grained at an oblique angle
Texture	:	medium

The following data are based on *Ocotea schomburgkiana* (Nees) Benth. & Hook.f. which is similar to *Ocotea tomentella* in appearance and technical properties.

Technological characteristics		
Physical properties	:	*O. schomburgkiana*
Green density (g/cm^3)	:	0.69
Air-dry density at 12% (g/cm^3)	:	0.54
Basic specific gravity	:	0.46
Total tangential shrinkage (%)	:	6.7
Total radial shrinkage (%)	:	3.0
Total volumetric shrinkage (%)	:	9.3
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	81
Modulus of elasticity at 12% (N/mm^2)	:	12687
Crushing strength at 12% (N/mm^2)	:	46

Processing

Sawing	:	easy blunting effect: very slight
Drying	:	easy to air-season risks of distortion: slight risks of checking: slight
Machining	:	no difficulty
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good
Veneering	:	peels well

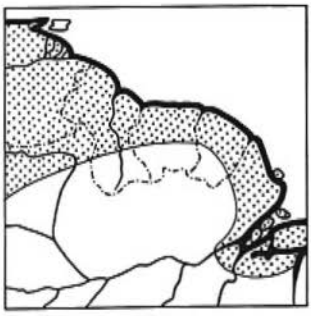
Natural durability

Resistance to decay	:	very good (white rot); good (brown rot)
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability : poor to good

Uses : interior joinery; millwork; furniture; moulding; plywood; shipbuilding

51 *Ormosia coccinea* (Aublet) B.D. Jackson **Barakaro**



51. *Ormosia coccinea*

Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Barakaro, Epik rik, Jumbi bead tree, Lucky seed
Brazil	:	Tento
French Guiana	:	Agui, Kokriki, Lebi kiabici, Panacoco blanc
Suriname	:	Firiberocbana, Hoogland kokrikie
International trade name	:	Tento
Distribution	:	Northern South America
Tree description		
Length of the bole	:	18-21(-25)m; height of tree: 20-35m
Diameter	:	0.4-0.9m
Shape of the log	:	straight and cylindrical; unbuttresses or basally swollen in large trees
Wood description		
Sapwood	:	distinct, cream to yellowish (4-5cm)
Heartwood	:	dark brown to reddish brown with lighter streaks
Grain	:	interlocked, irregular
Texture	:	coarse to very coarse
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.04
Air-dry density at 12% (g/cm^3)	:	0.70
Basic specific gravity	:	0.60
Total tangential shrinkage (%)	:	6.4
Total radial shrinkage (%)	:	3.2
Total volumetric shrinkage (%)	:	9.3
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	107
Modulus of elasticity at 12% (N/mm^2)	:	14510
Crushing strength at 12% (N/mm^2)	:	58

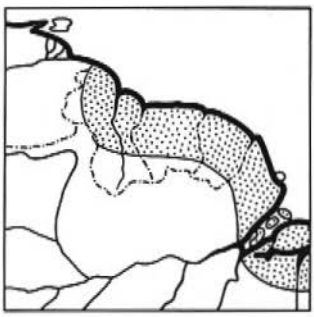
Processing

Sawing	:	easy blunting effect: very slight
Drying	:	no important risks; air-dries slowly risks of distortion: slight to moderate risks of checking: slight to moderate
Machining	:	not difficult or difficulties due to highly interlocked grain (rough surface)
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	requires care

Natural durability

Resistance to decay	:	moderate
Resistance to termites	:	moderate
Resistance to insects of dry wood	:	good

Treatability	:	moderate
Uses	:	furniture; stairs; carpentry; utility veneer; interior and exterior joinery; wainscoting



52. *Ormosia coutinhoi*

Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Crook, Horse-eye, Korokororo, Korongpinbiu, Wanaka
Brazil	:	Boiusse, Boiussu, Tento
French Guiana	:	Haiari, Lebi kiabici, Neko oudou aguitin, Saint Martin blanc, Saint Martin rouge
Suriname	:	Nekoe oedoe, Warabokkadan
International trade name	:	Tento
Distribution	:	The Guianas and lower Amazon region
Tree description		
Length of the bole	:	18-21m; height of tree: 20-35m
Diameter	:	0.40-0.75m
Shape of the log	:	cylindrical, base swollen or buttressed
Wood description		
Sapwood	:	distinct, grey to light brown or yellowish
Heartwood	:	dark brown to yellowish brown with dark striping and sometimes a pinkish tinge
Grain	:	straight to moderately interlocked, rocy
Texture	:	coarse
Remark	:	wood with waxy appearance
Technological characteristics		
Physical properties		
Air-dry density at 12% (g/cm^3)	:	0.62
Basic specific gravity	:	0.51
Tangential shrinkage [Green to 15%] (%)	:	3.4
Radial shrinkage [Green to 15%] (%)	:	1.3

Mechanical properties

Bending strength at 12% (N/mm^2)	:	95
Modulus of elasticity at 12% (N/mm^2)	:	11859
Crushing strength at 12% (N/mm^2)	:	47

Processing

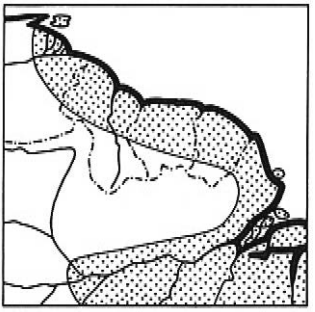
Sawing	:	easy blunting effect: very slight
Drying	:	air-seasoning moderately difficult
Machining	:	easily worked; interlocked grain may be a problem
Gluing	:	good
Nailing	:	good holding of nails

Natural durability

Resistance to decay	:	poor to moderate
Resistance to termites	:	poor
Resistance to insects of dry wood	:	(sapwood) prone to powder-post beetle attack

Treatability : moderate

Uses : general construction; furniture; carpentry



53. *Parahancornia fasciculata*

Synonym	:	*Parahancornia amapa* (Huber) Ducke
Family	:	Apocynaceae
Vernacular names		
Guyana	:	Amapa, Dukali
Brazil	:	Amapa, Amapa amargoso, Amapa branco
French Guiana	:	Dokali, Mapa
Suriname	:	Amapa, Doekali, Mapa
International trade name	:	Amapa
Distribution	:	The Guianas and Amazon Basin
Tree description		
Length of the bole	:	up to 20m; height of tree: 20-25(-40)m
Diameter	:	0.25-0.45(-1.0)m
Shape of the log	:	straight, cylindrical, slender; sometimes with rootspurs
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	light beige to cream or slightly pinkish
Grain	:	straight
Texture	:	fairly fine
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	0.80
Air-dry density at 12% (g/cm^3)	:	0.52
Basic specific gravity	:	0.44
Total tangential shrinkage (%)	:	7.7
Total radial shrinkage (%)	:	4.3
Total volumetric shrinkage (%)	:	11.7

Mechanical properties

Bending strength at 12% (N/mm²)	:	89
Modulus of elasticity at 12% (N/mm²)	:	10600
Crushing strength at 12% (N/mm²)	:	44

Processing

Sawing	:	easy blunting effect: slight
Drying	:	no important risks risks of distortion: slight risks of checking: slight
Machining	:	easy
Gluing	:	good
Nailing	:	medium holding of nails
Finishing	:	good
Veneering	:	interesting for peeling

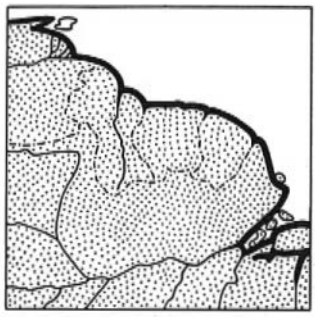
Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability : moderate

Uses : interior joinery; plywood (core); cheap furniture; moulding; window shutters; light packing; wainscoting; light carpentry; toys; exterior joinery (with treatment)

55 *Peltogyne venosa* (Vahl) Benth. **Purpleheart**



55. *Peltogyne venosa*

Family	:	Leguminosae (Caesalpinioideae)
Vernacular names		
Guyana	:	Karawai, Koroboreli, Kukwi, Marako, Mök, Purpleheart, Saka
Bolivia	:	Morado
Brazil	:	Guarabu, Pau roxo, Pau violeta, Roxinho
Colombia	:	Nazareno, Tananeo
French Guiana	:	Amarante, Bois violet
Suriname	:	Popo-ati, Purperhart
Venezuela	:	Algarrobito, Morado, Zapatero
International trade name	:	Amarante
Distribution	:	Tropical South America
Tree description		
Length of the bole	:	15-27m; height of tree: 25-35(-55)m
Diameter	:	0.45-0.90(-1.5)m
Shape of the log	:	straight, cylindrical; base buttressed
Wood description		
Sapwood	:	clearly distinct, pale pink to grey white (3-6cm)
Heartwood	:	beige when freshly cut, turns rapidly to violet upon exposure to light and darkens eventually to dark brown with age and continued exposure to light
Grain	:	generally straight, at times slightly interlocked or slightly wavy
Texture	:	rather fine

Technological characteristics

Physical properties

Green density (g/cm³)	:	1.20
Air-dry density at 12% (g/cm³)	:	0.84
Basic specific gravity	:	0.75
Total tangential shrinkage (%)	:	6.6
Total radial shrinkage (%)	:	4.6
Total volumetric shrinkage (%)	:	11.2

Mechanical properties

Bending strength at 12% (N/mm²)	:	155
Modulus of elasticity at 12% (N/mm²)	:	16860
Crushing strength at 12% (N/mm²)	:	79

Processing

Sawing	:	power required; presence of internal stresses blunting effect: moderate
Drying	:	not difficult U S. kiln schedule T6-D2 for 25-38 mm (4/4 to 6/4) stock and T3-D1 for 50 mm (8/4) stock; British schedule E (25 mm); or kiln schedule for 41 mm listed below risks of distortion: slight risks of checking: slight movement in service small to medium

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	39	83
50	48	43	74
40	48	43	74
30	48	43	74
25	54	46	65
15	54	46	65

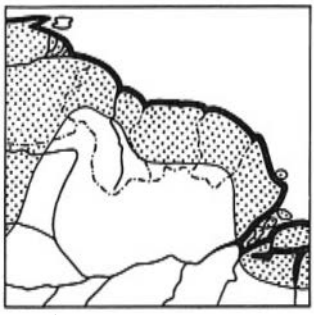
Machining	:	power required; moderately difficult
Gluing	:	good with care
Nailing	:	moderate holding of nails; pre-boring necessary
Finishing	:	good
Veneering	:	slices well

Natural durability

Resistance to decay	:	moderate to good
Resistance to termites	:	good
Resistance to insects of dry wood	:	good

Treatability : poor

Uses : marquetry; cabinet work; interior and exterior joinery; decorative uses; furniture; glued laminated beams; stairs; heavy carpentry; sliced veneer; flooring; ship building; decorative handles; tool handles; billiard cue butts; carving; turnery; fine coffins (USA)



56. *Platonia insignis*

Synonym	:	According to the official nomenclatural rules the name *Platonia esculenta* (Arruda) Rickett & Stafleu is also valid
Family	:	Guttiferae
Vernacular names		
Guyana	:	Pakuri, Wild mammee apple
Brazil	:	Bacuri, Bacuri-acu, Bacuxluba, Pacuru
Ecuador	:	Matazama
French Guiana	:	Matouni, Mongo matoaki, Moussa, Pakoueli, Parcouri
Paraguay	:	Bacury-guazu
Suriname	:	Bakoeri, Geelhart, Pakoeli
Venezuela	:	Roble Maria
International trade name	:	Bacuri, Pakuri
Distribution	:	Tropical South America
Tree description		
Length of the bole	:	18-21(-25)m; height of tree: 20-35m
Diameter	:	0.5-0.8(-1.2)m
Shape of the log	:	straight and cylindrical; base swollen, or with low, thick root spurs
Wood description		
Sapwood	:	distinct, beige (3-6cm)
Heartwood	:	yellow brown with yellow beige streaks or stripes
Grain	:	straight
Texture	:	medium to coarse

Technological characteristics

Physical properties

Green density (g/cm³)	:	1.10
Air-dry density at 12% (g/cm³)	:	0.85
Basic specific gravity	:	0.77
Total tangential shrinkage (%)	:	10.0
Total radial shrinkage (%)	:	5.4
Total volumetric shrinkage (%)	:	15.5

Mechanical properties

Bending strength at 12% (N/mm²)	:	163
Modulus of elasticity at 12% (N/mm²)	:	18200
Crushing strength at 12% (N/mm²)	:	73

Processing

Sawing : power required
blunting effect: very slight to moderate (silica content variable)

Drying : requires care
kiln schedule for 41 mm listed below
risks of distortion: more or less high
risks of checking: more or less high
movement in service large

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	39	83
50	48	43	74
30	54	46	65
20	54	46	65

Machining : some difficulties due to hardness or silica content; special tools recommended

Gluing : good

Nailing : pre-boring necessary

Finishing : good

Veneering : interesting for slicing

Natural durability

Resistance to decay	:	very good
Resistance to termites	:	good
Resistance to insects of dry wood	:	good

Treatability : poor

Uses : flooring; stairs; furniture; carpentry; interior and exterior joinery; sliced veneer; hydraulic works; bridges; moulding

57 *Pouteria cuspidata* (A. DC.) Baehni — **Kokoritiballi**

57. *Pouteria cuspidata*

Synonym	:	*Pouteria dura* Eyma *Neoxythece dura* (Eyma) Aubr. & Pellegr.
Family	:	Sapotaceae
Vernacular names		
Guyana	:	Bastard kokoritiballi, Courouitaballi, Kokoritiballi
Brazil	:	Abiurana, Abiurana arana, Pau doce
French Guiana	:	Balata singe rouge
Peru	:	Caimitillo
Suriname	:	Kurassini, Moraballi koeleroe, Pientobolletrie
Venezuela	:	Chuponcillo, Pendarito, Purguillo felix, Temare
International trade name	:	Abiuranta
Distribution	:	Panama to Tropical South America
Tree description		
Length of the bole	:	18-24 m; height of tree: 25-35m
Diameter	:	0.25-0.60m
Shape of the log	:	cylindrical to fluted; base straight to buttressed
Wood description		
Sapwood	:	somewhat distinct, light brown
Heartwood	:	reddish brown
Grain	:	straight
Texture	:	fine

The following data are based on *Pouteria egregia* Sandw. and *P. eugeniifolia* (Pierre) Baehni which are similar to *P. cuspidata* in appearance and technical properties.

Technological characteristics

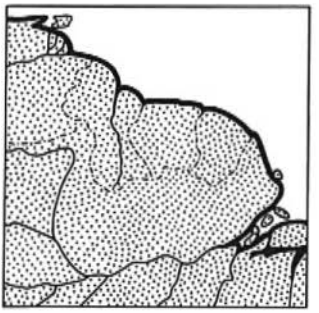
Physical properties	:	*P. egregia*	*P. eugeniifolia*
Green density (g/cm^3)	:	1.19	1.29
Air-dry density at 12% (g/cm^3)	:	1.07	1.33
Basic specific gravity	:	0.88	1.08
Total tangential shrinkage (%)	:	10.6	11.3
Total radial shrinkage (%)	:	7.7	7.6
Total volumetric shrinkage (%)	:	17.6	16.9
Mechanical properties			
Bending strength at 12% (N/mm^2)	:	186	259
Modulus of elasticity at 12% (N/mm^2)	:	24252	30430
Crushing strength at 12% (N/mm^2)	:	94	108

Processing

Sawing	:	power required blunting effect: high (silica)
Drying	:	air-dried at a moderate rate
Machining	:	difficult because of hardness and silica content; special tools required
Nailing	:	pre-boring necessary

Natural durability

Resistance to decay	:	poor to moderate
Resistance to insects of dry wood	:	good
Treatability	:	poor
Uses	:	heavy construction; industrial flooring



58. *Pouteria guianensis*

Family	:	Sapotaceae
Vernacular names		
Guyana	:	Asepoko, Common asepoko, Marapasmukri, Pöyak
Brazil	:	Abiu, Abiurana
Colombia	:	Caimito
French Guiana	:	Akoinsiba, Jaune d'oeuf
Suriname	:	Jamboka, Jan Snijder
Venezuela	:	Caimito morado, Carrizalero, Juan colorado
International trade name	:	Asepoko
Distribution	:	Tropical South America
Tree description		
Length of the bole	:	18-21m; height of tree: 20-35(40)m
Diameter	:	0.3-0.9m
Shape of the log	:	cylindrical, or fluted at the base, up to 2m high; base swollen to buttressed
Wood description		
Sapwood	:	distinct, yellow brown
Heartwood	:	red brown, somewhat striped or flame-like figured
Grain	:	straight, sometimes slightly interlocked
Texture	:	fine
Technological characteristics		
Physical properties		
Air-dry density at 12% (g/cm^3)	:	1.17
Total tangential shrinkage (%)	:	9.5
Total radial shrinkage (%)	:	5.9
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	184
Modulus of elasticity at 12% (N/mm^2)	:	21520
Crushing strength at 12% (N/mm^2)	:	92

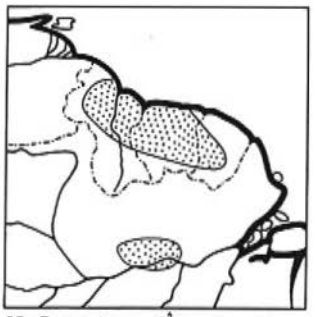
Processing

Sawing	:	power required blunting effect: high (silica)
Drying	:	air-drying easy when dried at a moderate rate
Machining	:	difficult because of hardness and silica content; special tools recommended
Nailing	:	pre-boring necessary

Natural durability

Resistance to decay	:	very good
Resistance to insects of dry wood	:	good
Remark	:	resistant to marine borers
Uses	:	heavy construction; house framing; posts; spars; lock gates; marine construction in fresh and salt water

59 *Pouteria speciosa* (Ducke) Baehni — Suya



59. *Pouteria speciosa*

Family	:	Sapotaceae
Vernacular names		
Guyana	:	Chuya, Durban pine, Por, Suya
Brazil	:	Pajura, Pajura de Obidos
International trade name	:	Suya
Distribution	:	The Guianas to Pará (Brazil)
Tree description		
Length of the bole	:	21-24m; height of tree: 25-35(-45)m
Diameter	:	0.35-0.90(-1.2)m
Shape of the log	:	cylindrical, little taper; base slightly swollen
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	light brown, occasionally pale purple flushed
Grain	:	generally straight
Texture	:	fine

The following data are based on two unidentified species of *Pouteria* and *Chrysophyllum* from Panama which have similar air-dry densities to *Pouteria speciosa* (0.48-0.64 g/cm^3 according to Fanshawe, 1948). No other information available.

Technological characteristics

Physical properties	:	*Pouteria sp.* 'mamey de montana'	*Chrysophyllum sp.* 'caimitillo'
Green density (g/cm^3)	:	0.95	1.01
Air-dry density at 12% (g/cm^3)	:	0.71	0.70
Basic specific gravity	:	0.59	0.58
Total tangential shrinkage (%)	:	11.0	9.0
Total radial shrinkage (%)	:	5.5	6.4
Total volumetric shrinkage (%)	:	16.5	16.0

Mechanical properties	:	*Pouteria sp.* 'mamey de montana'	*Chrysophyllum sp.* 'caimitillo'
Bending strength at 12% (N/mm^2)	:	126	116
Modulus of elasticity at 12% (N/mm^2)	:	20888	16966

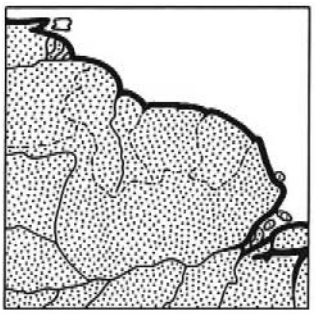
Processing

Sawing	:	moderately easy blunting effect: moderate (silica)
Drying	:	air-dried at a moderate rate
Machining	:	moderately difficult due to silica; fuzzy grain may also be a problem
Finishing	:	good

Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability	:	moderate
Uses	:	general construction; flooring; poles and posts (treated); sleepers (treated); plywood



60. *Protium decandrum*

Family	:	Burseraceae
Vernacular names		
Guyana	:	Common kurokai, Kurokai, Maruwa, Porokai, Waruwai
Brazil	:	Breu
Central America	:	Copal, Incienso
French Guiana	:	Encens, Tinguimoni
Suriname	:	Tingimoni
International trade name	:	Kurokai
Distribution	:	Central and Northern South America
Tree description		
Length of the bole	:	up to 18m; height of tree: 15-25(-40)m
Diameter	:	0.35-0.70(-1.0)m
Shape of the log	:	usually well formed, sometimes fluted; base buttressed
Wood description		
Sapwood	:	not clearly distinct, pink or occasionally pale yellow
Heartwood	:	pinkish brown sometimes with dark reddish brown irregularly spaced streaks
Grain	:	straight or shallowly interlocked
Texture	:	fine
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	0.90
Air-dry density at 12% (g/cm3)	:	0.64
Basic specific gravity	:	0.53
Total tangential shrinkage (%)	:	3.1-4.0
Total radial shrinkage (%)	:	5.1-6.5
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	110
Modulus of elasticity at 12% (N/mm^2)	:	12890
Crushing strength at 12% (N/mm^2)	:	61

Processing

Sawing	:	power required; rather difficult; resin accumulates and clogs sawteeth (debark logs prior to conversion)
Drying	:	fairly rapid, but moderately difficult without problems risks of distortion: more or less high risks of checking: more or less high (original shakes tend to extend during drying)
Machining	:	no important difficulties
Gluing	:	variable
Nailing	:	pre-boring necessary
Finishing	:	requires a little filling
Veneering	:	interesting for peeling

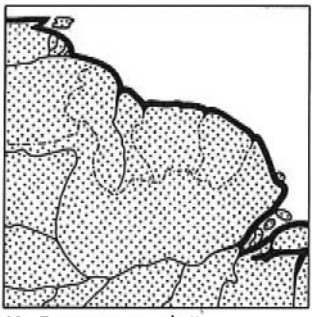
Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability : poor

Uses : furniture; house framing; plywood; interior joinery; interior fittings; veneer; light carpentry

61 *Pterocarpus rohrii* Vahl — **Hill corkwood**



61. *Pterocarpus rohrii*

Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Corkwood, Hill corkwood, Itikiboro, Mutushi
Brazil	:	Pau sangre
Central America	:	Palo de sangre, Pizarro, Sangre, Sangrillo
Ecuador	:	Cuchi parutu yura, Supai yahuar huiqui
French Guiana	:	Moutouchi
Suriname	:	Hoogland bebe, Watra bebe
Trinidad and Tobago	:	Swamp bloodwood
Venezuela	:	Drago, Sangrito
International trade name	:	Bebe, Sangre
Distribution	:	Mexico to Southern Brazil and Bolivia
Tree description		
Length of the bole	:	15-18m; height of tree: 20-25m
Diameter	:	0.45-1.0m
Shape of the log	:	irregular, tapered, usually fluted bole; base with plank buttresses
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	yellowish or dirty white, sometimes with traumatic dark brown to purple brown heartwood
Grain	:	straight, sometimes irregular
Texture	:	medium to coarse
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	0.88
Air-dry density at 12% (g/cm^3)	:	0.49
Basic specific gravity	:	0.41
Total tangential shrinkage (%)	:	6.3
Total radial shrinkage (%)	:	3.2

Mechanical properties

Bending strength at 12% (N/mm^2)	:	72
Modulus of elasticity at 12% (N/mm^2)	:	9895
Crushing strength at 12% (N/mm^2)	:	37

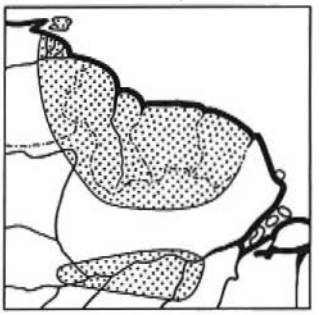
Processing

Sawing	:	easy blunting effect: slight
Drying	:	easy; some distortion pre-air-drying necessary and then final kiln-drying
Machining	:	easy; finishes smoothly
Nailing	:	good holding of nails
Veneering	:	good for related species

Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability	:	good
Uses	:	general carpentry; furniture components; particleboard and fibreboard



62. *Quassia simarouba*

Synonym	:	*Simarouba amara* Aublet
Family	:	Simaroubaceae
Vernacular names		
Guyana	:	Aku, Bitter ash, Guashi, Shirima, Simarupa, Simere, Yaku
Bolivia	:	Chiriuana
Brazil	:	Marupa, Parahyba, Tamanqueira
Central America	:	Aceituno, Olivo negrito, Xpasak
Colombia	:	Marupa, Simaruba
Ecuador	:	Cedro amargo
French Guiana	:	Acajou blanc, Simaruba
Peru	:	Marupa
Suriname	:	Socmaroeba
Venezuela	:	Cedro blanco, Simarouba
International trade name	:	Marupa, Simaruba
Distribution	:	Central and Tropical South America
Tree description		
Length of the bole	:	15-30m: height of tree: may reach 45m
Diameter	:	0.6-0.9m
Shape of the log	:	straight, cylindrical, strongly tapered; unbuttressed
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	cream white to yellow white with occasionally oily streaks
Grain	:	straight
Texture	:	medium to coarse

Technological characteristics

Physical properties

Green density (g/cm^3)	:	0.60-0.70
Air-dry density at 12% (g/cm^3)	:	0.41
Basic specific gravity	:	0.35
Total tangential shrinkage (%)	:	6.3
Total radial shrinkage (%)	:	2.8
Total volumetric shrinkage (%)	:	9.8

Mechanical properties

Bending strength at 12% (N/mm^2)	:	66
Modulus of elasticity at 12% (N/mm^2)	:	8100
Crushing strength at 12% (N/mm^2)	:	34

Processing

Sawing	:	easy blunting effect: very slight
Drying	:	easy and rapid; risk of blue stain kiln schedule for 41mm listed below risks of distortion: slight or none risks of checking: slight or none movement in service low

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	55	51	80
35	57	51	72
30	60	52	65
20	69	55	48
15	74	56	42

Machining	:	easy
Nailing	:	medium to good holding of nails
Finishing	:	good; filling recommended
Veneering	:	slices and peels well but veneers are sometimes fragile

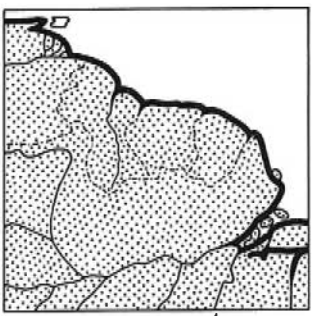
Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability : good

Uses : moulding; furniture components; interior joinery; plywood; matches; panelling; packaging; crates; block-board (core); turnery; musical instruments; toys

63 *Sacoglottis guianensis* Benth. **Sand dukuria**



63. *Sacoglottis guianensis*

Family	:	Humiriaceae
Vernacular names		
Guyana	:	Dukuria, Huriki, Kotore, Puire, Sand dukuria, Yapopari
Brazil	:	Achua, Axua, Cumate, Paruru, Uchy
Suriname	:	Bofroe-oedoe, Doekoelia
Venezuela	:	Ponsigue montanero
International trade name	:	Dukuria
Distribution	:	Tropical South America
Tree description		
Length of the bole	:	height of tree: 20-30m
Diameter	:	0.4-0.6m
Shape of the log	:	base somewhat swollen
Wood description		
Sapwood	:	not clearly distinct, light yellow brown to red-brown
Heartwood	:	greyish brown to dark reddish or purplish brown
Grain	:	mostly irregular
Texture	:	medium to coarse
Technological characteristics		
Physical properties		
Air-dry density at 12% (g/cm^3)	:	0.96
Basic specific gravity	:	0.83
Total tangential shrinkage (%)	:	10.6
Total radial shrinkage (%)	:	6.4
Total volumetric shrinkage (%)	:	17.6
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	196
Modulus of elasticity at 12% (N/mm^2)	:	20588
Crushing strength at 12% (N/mm^2)	:	87

Processing

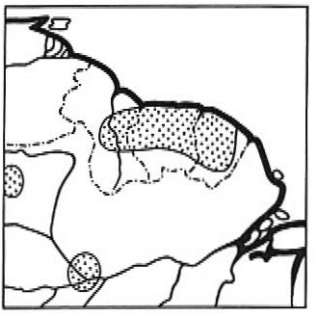
Sawing	:	power required blunting effect: moderate
Drying	:	relatively fast; little degrade
Machining	:	easy and finishes smoothly; irregular or interlocked grain may be a problem
Nailing	:	pre-boring necessary; good holding of nails

Natural durability

Resistance to decay	:	poor to moderate
Resistance to termites	:	poor

Treatability : poor

Uses : heavy construction; industrial flooring



64. *Schefflera decaphylla*

Synonym	:	*Schefflera paraensis* Huber ex Ducke
Family	:	Araliaceae
Vernacular names		
Guyana	:	Blunt-leafkarohoro, Karohoro, Matchwood
Brazil	:	Morototo
French Guiana	:	La Saint Jean, Tobitoutou
Suriname	:	Kassavehout, Morototo
International trade name	:	Morototo
Distribution	:	Tropical South America
Tree description		
Length of the bole	:	25m; height of tree: 30m
Diameter	:	0.5-0.6m, occasionally up to lm or more
Shape of the log	:	straight, cylindrical; base swollen or with root spurs
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	grey white to beige white
Grain	:	straight
Texture	:	medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	0.70-0.90
Air-dry density at 12% (g/cm^3)	:	0.51
Basic specific gravity	:	0.43
Total tangential shrinkage (%)	:	9.6
Total radial shrinkage (%)	:	6.5
Total volumetric shrinkage (%)	:	16.4

Mechanical properties

Bending strength at 12% (N/mm²)	:	66
Modulus of elasticity at 12% (N/mm²)	:	8500
Crushing strength at 12% (N/mm²)	:	39

Processing

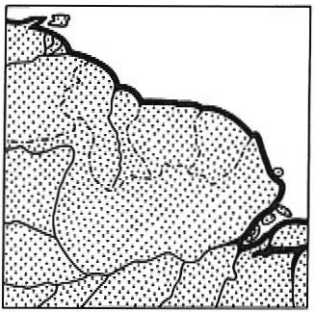
Sawing	:	easy blunting effect: very slight
Drying	:	rapid; requires care; risk of blue stain risks of distortion: more or less high risks of checking: possible
Machining	:	easy; sometimes woolly surface
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good
Veneering	:	peels well

Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability	:	good
Uses	:	matches; interior joinery; plywood; boxes and crates; light carpentry; moulding; toys; pencils; blockboard; particleboard; toothpicks

65 ***Schefflera morototoni*** (Aublet) Maguire, Steyerm. & Frodin **Pointed-leaf karohoro**



65. *Schefflera morototoni*

Synonym	:	*Didymopanax morototoni* Aublet
Family	:	Araliaceae
Vernacular names		
Guyana	:	Karohoro, Matchwood, Morototo, Pi, Pointed-leaf karohoro, Pömai, Puna
Argentina	:	Ambay-guazu
Bolivia	:	Borracho, Guitarrero
Brazil	:	Mandiocai, Marupauba falso, Matatauba, Morototo
Colombia	:	Pata de Gallina, Yarumero
Ecuador	:	Platanillo, Suntuch
French Guiana	:	La Saint Jean, Tobitoutou
Honduras	:	Guarumo macho
Peru	:	Anonilla, Sacha-uva
Suriname	:	Morototo, Kasavehout
Trinidad and Tobago	:	Matchwood
Venezuela	:	Cafetero, Higueroton, Guarumo-macho, Sun-sun
International trade name	:	Morototo
Distribution	:	Central and Tropical South America
Tree description		
Length of the bole	:	15-20m; height of tree: 20-35m
Diameter	:	0.35-0.80m
Shape of the log	:	straight, cylindrical; basally swollen
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	grey white to beige white
Grain	:	straight
Texture	:	medium

Technological characteristics

Physical properties

Green density (g/cm³)	:	0.70-0.90
Air-dry density at 12% (g/cm³)	:	0.58
Basic specific gravity	:	0.49
Total tangential shrinkage (%)	:	9.9
Total radial shrinkage (%)	:	6.3
Total volumetric shrinkage (%)	:	17.2

Mechanical properties

Bending strength at 12% (N/mm²)	:	81
Modulus of elasticity at 12% (N/mm²)	:	11240
Crushing strength at 12% (N/mm²)	:	42

Processing

Sawing	:	easy blunting effect: very slight
Drying	:	rapid; requires care; risk of blue stain risks of distortion: more or less high risks of checking: possible
Machining	:	easy; sometimes woolly surface
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good
Veneering	:	peels well

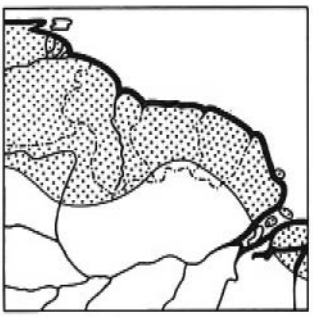
Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability : good

Uses : matches; interior joinery; plywood; boxes and crates; light carpentry; moulding; toys; pencils; blockboard; particleboard; toothpicks

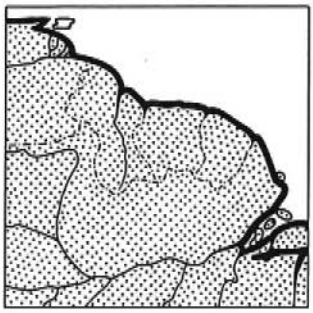
66 ***Sclerolobium guianense*** Benth. **Kaditiri**
66a ***Sclerolobium micropetalum*** Ducke **Thin-skin kaditiri**



66. *Sclerolobium guianense*

66a. *Sclerolobium micropetalum*

Family	:	Leguminosae (Caesalpinioideae)
Vernacular names		
Guyana	:	Araurama, Kaditiri, Kalili, Kata, Thick-skin kaditiri, Thin-skin kaditiri, Wamkoam, Yawaredan
Brazil	:	Pacuare, Tachi, Tachy
Ecuador	:	Guabillo, Matapalo, Wantsun
French Guiana	:	Diaguidia
Suriname	:	Ararama, Bintoela, Jawaledan, Witte Djedoe, Zwarte Djedoe
Venezuela	:	Congrio, Guamillo
International trade name	:	Djedoe (66, 66a), Kaditiri (66, 66a)
Distribution	:	Tropical South America
Tree description		
Length of the bole	:	21-24m; height of tree: 25-40m
Diameter	:	0.3-0.65(-0.9)m
Shape of the log	:	often with very shallow longitudinal depressions; base usually with many buttresses
Wood description		
Sapwood	:	not clearly distinct, light brown (2-7cm)
Heartwood	:	pale to dark brown, often with pinkish, yellowish or olive tinge
Grain	:	straight to interlocked
Texture	:	medium to coarse



76. *Tetragastris altissima*

Family	:	Burseraceae
Vernacular names		
Guyana	:	Asau, Haiawaballi, Kamaragwa
Brazil	:	Almesclao, Breu grande, Breu manga, Breu preto
French Guiana	:	Encens rouge, Lebi-sali, Sali
Suriname	:	Rode salie, Sali, Tingimoni
International trade name	:	Sali
Distribution	:	The Guianas and Western Brazil
Tree description		
Length of the bole	:	18-21m; height of tree: 25-30m
Diameter	:	0.5-0.6(-1.0)m
Shape of the log	:	moderately good form, often flattened or irregular; base with root spurs or buttresses
Wood description		
Sapwood	:	usually clearly distinct, yellowish brown to pinkish grey (3-7cm)
Heartwood	:	orange to red brown
Grain	:	frequently interlocked, rocy
Texture	:	fine
Remark	:	radial gum ducts sometimes present
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	>1.00
Air-dry density at 12% (g/cm^3)	:	0.83
Basic specific gravity	:	0.73
Total tangential shrinkage (%)	:	7.1
Total radial shrinkage (%)	:	5.0
Total volumetric shrinkage (%)	:	12.5

Mechanical properties

Bending strength at 12% (N/mm²)	:	143
Modulus of elasticity at 12% (N/mm²)	:	17760
Crushing strength at 12% (N/mm²)	:	71

Processing

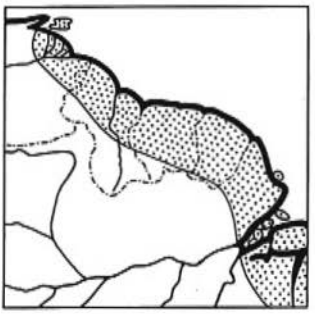
Sawing	:	power required; somewhat difficult blunting effect: moderate
Drying	:	generally good; kiln schedules for *T. amazonia* recommended risks of distortion: moderate risks of checking: moderate
Machining	:	moderately difficult: some tearing may occur in planing because of interlocked grain
Gluing	:	good
Nailing	:	pre-boring necessary
Finishing	:	good; may require little sanding
Veneering	:	moderate to difficult

Natural durability

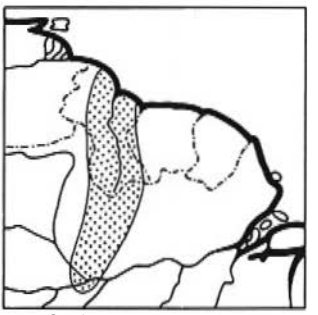
Resistance to decay	:	good
Resistance to insects of dry wood	:	poor

Treatability	:	poor
Uses	:	interior and exterior joinery; furniture; general construction; cabinet work; turnery; plywood; sleepers

75 ***Terminalia dichotoma*** G. Meyer — **Swamp fukadi**
75a ***Buchenavia fanshawei*** Exell & Maguire — **Fukadi**



75. *Terminalia dichotoma*



75a. *Buchenavia fanshawei*

Family	:	Combretaceae
Vernacular names		
Guyana	:	Alasoabo, Coffee mortar, Cokerwood, Fukadi, Naharu, Simia chimi, Swamp fukadi
French Guiana	:	Angouchy
Suriname	:	Boes'amandra, Bosamandel
Venezuela	:	Guayabo, Pata de danto amarillo
International trade name	:	Fukadi (75, 75a)
Distribution	:	The Guianas, Venezuela and Amazonian Brazil
Tree description		
Length of the bole	:	18-21m; height of tree: 20-35(-45)m
Diameter	:	0.5-1.0m
Shape of the log	:	cylindrical, sometimes fluted; spreading buttresses
Wood description		
Sapwood	:	not clearly distinct from heartwood
Heartwood	:	light brown to light creamy brown, often with darker streaks
Grain	:	straight to rocy
Texture	:	medium

The following data are based on ***Terminalia guianensis*** Aublet which is similar to *Terminalia dichotoma* and *Buchenavia fanshawei* in appearance and technical properties.

Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.08
Air-dry density at 12% (g/cm^3)	:	0.84
Basic specific gravity	:	0.68
Total tangential shrinkage (%)	:	8.4
Total radial shrinkage (%)	:	4.8
Total volumetric shrinkage (%)	:	12.6

Technological characteristics

Physical properties

Green density (g/cm^3)	:	1.14		
Air-dry density at 12% (g/cm^3)	:	0.70	-	0.90*
Basic specific gravity	:	0.58	-	0.79*
Total tangential shrinkage (%)	:	8.6	-	9.7*
Total radial shrinkage (%)	:	5.1	-	7.1*
Total volumetric shrinkage (%)	:	13.3	-	15.0*

Mechanical properties

Bending strength at 12% (N/mm^2)	:	107	-	169*
Modulus of elasticity at 12% (N/mm^2)	:	13200	-	18400*
Crushing strength at 12% (N/mm^2)	:	54	-	76*

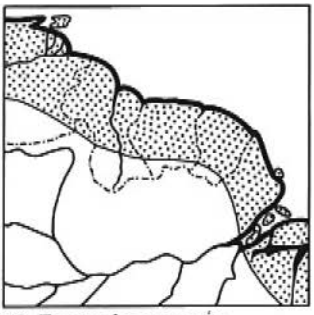
Processing

Sawing	:	power required; somewhat difficult (internal stresses) blunting effect: moderate
Drying	:	U.S. kiln schedule T3-C2 for 25-38 mm (4/4 to 6/4) stock and T3-C1 for 50 mm (8/4) stock or British schedule C (25 mm) risks of distortion: slight to high risks of checking: slight to high risk of casehardening
Machining	:	moderately difficult; some tearing may occur in planing because of highly interlocked grain
Gluing	:	good
Nailing	:	pre-boring necessary to prevent splitting
Finishing	:	good; may require little sanding
Veneering	:	difficult to cut into veneer

Natural durability

Resistance to decay	:	variable; poor to good
Resistance to termites	:	good for drywood termites, poor for subterranean termites
Resistance to insects of dry wood	:	poor
Remark	:	separating heartwood and sapwood is a concern
Treatability	:	poor
Uses	:	flooring; cabinet work; furniture; general construction; interior and exterior joinery; turnery; boat building (planking-decking); sleepers

* Data from two different reference sources



74. *Terminalia amazonia*

Family	:	Combretaceae
Vernacular names		
Guyana	:	Coffee mortar, Hill fukadi, Kwai, Matora, Tamarotan, Pookadi
Belize	:	Almendro, Bullywood
Bolivia	:	Verdolago
Brazil	:	Merendiba branca, Pau mulato brancho
Colombia	:	Guyabo leon
Ecuador	:	Roble, Yumbingue
French Guiana	:	Anangossi, Anangossiti, Angouchi
Honduras	:	Almendro, Guaba, Guayabillo, Naranjo, Nargusta
Mexico	:	Canshan, Cochun, Puete, Suchi amarillo
Panama	:	Amarillo carabazuelo
Suriname	:	Ginju-hoedoe, Kalebashout
Trinidad and Tobago	:	White oliver
Venezuela	:	Chicharro, Pardillo amarillo, Pardillo negro
International trade name	:	Nargusta
Distribution	:	Central and Northern South America, also Trinidad and Tobago
Tree description		
Length of the bole	:	18-21m; height of tree: 20-35(-50)m
Diameter	:	0.3-0.75(-1.20)m
Shape of the log	:	straight, cylindrical; large buttresses
Remark	:	trees with diameters over 0.50-0.65m are often hollow
Wood description		
Sapwood	:	not always clearly distinct, yellowish
Heartwood	:	variable from yellowish olive to golden brown, sometimes with reddish brown stripes
Grain	:	rocy, interlocked
Texture	:	medium

Mechanical properties

Bending strength at 12% (N/mm²)	:	138	161
Modulus of elasticity at 12% (N/mm²)	:	13435 (green)	17946
Crushing strength at 12% (N/mm²)	:	68	82

Processing

Sawing	:	power required blunting effect: slight
Drying	:	easy to air-dry
Machining	:	good
Nailing	:	pre-boring necessary; good holding of nails
Finishing	:	good
Veneering	:	poor

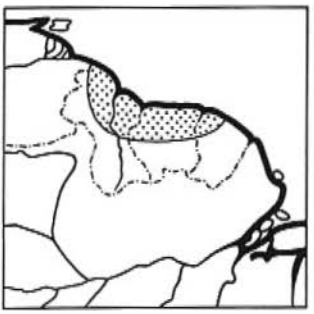
Natural durability

Resistance to decay	:	good
Resistance to termites	:	moderate
Resistance to insects of dry wood	:	good

Treatability : good to moderate

Uses : interior construction

73 *Talisia squarrosa* Radlk. **Moroballi**



73. *Talisia squarrosa*

Family	:	Sapindaceae
Vernacular names		
Guyana	:	Candlewood, Karimora, Moroballi, Sand mora
Brazil	:	Pitomba, Tapaljacote
Suriname	:	Hodeme, Karaba, Karababalli, Makka krappa
Venezuela	:	Carne asada, Cotoperis, Cotuplis, Tiestigo
International trade name	:	Moroballi
Distribution	:	Northern Guianas
Tree description		
Length of the bole	:	15-18m; height of tree: 20-35m
Diameter	:	0.3-0.6(-0.75)m
Shape of the log	:	cylindrical, base buttressed
Wood description		
Sapwood	:	not clearly distinct, light brown
Heartwood	:	yellowish brown, sometimes with dark streaks
Grain	:	straight to interlocked
Texture	:	medium

The following data are based on *Talisia esculenta* Radlk. from Brazil and an unknown species of *Talisia* from Venezuela which are similar to *Talisia squarrosa* in appearance and technical properties.

Technological characteristics			
Physical properties	:	*T. esculenta*	*T. sp.*
Green density (g/cm³)	:	-	1.23
Air-dry density at 12% (g/cm³)	:	1.10	1.02
Basic specific gravity	:	-	0.84
Total tangential shrinkage (%)	:	16.9	11.0
Total radial shrinkage (%)	:	9.3	5.7
Total volumetric shrinkage (%)	:	29.9	15.3

Technological characteristics

Physical properties

Green density (g/cm³)	:	1.30
Air-dry density at 12% (g/cm³)	:	1.04
Basic specific gravity	:	0.96
Total tangential shrinkage (%)	:	6.4
Total radial shrinkage (%)	:	5.1
Total volumetric shrinkage (%)	:	13.6

Technical properties

Bending strength at 12% (N/mm²)	:	184
Modulus of elasticity at 12% (N/mm²)	:	18350
Crushing strength at 12% (N/mm²)	:	95

Processing

Sawing	:	power required blunting effect: moderate
Drying	:	no important problems, must be handled slowly U.S. kiln schedule T3-C1 for 25-38 mm (4/4 to 6/4) stock; British schedule E (25 mm); or kiln schedule for 41mm listed below risks of distortion: slight risks of checking: slight movement in service medium

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air(%)
Green	42	41	94
30	42	41	94
25	42	39	82
20	48	43	74
15	48	43	74

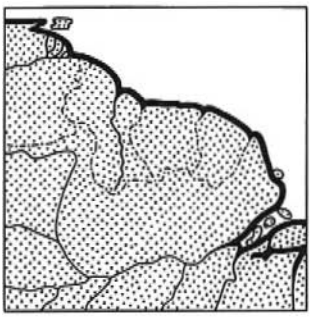
Machining	:	moderately difficult; power required
Gluing	:	special precautions needed
Nailing	:	pre-boring necessary
Finishing	:	good; sometimes the deposits of 'lapachol' may give trouble in painting and varnishing
Veneering	:	interesting for slicing (decorative veneer); steaming recommended
Remark	:	dust may cause dermatitis

Natural durability

Resistance to decay	:	very good
Resistance to termites	:	very good
Resistance to insects of dry wood	:	good

Treatability : poor

Uses : decorative veneer; cabinet work; industrial and parquet flooring; sleepers; stairs; furniture; naval construction (rib, decking); heavy carpentry; hydraulic works (fresh water); turnery; tool handles; interior and exterior joinery; vehicle bodies; outdoor furniture; bridge decking; bridges



72. *Tabebuia serratifolia*

Family	:	Bignoniaceae
Vernacular names		
Guyana	:	Arawnig, Aruain, Hakia, Ironwood, Konawadranup, Ranoi
Argentina	:	Ipe, Lapacho negro
Bolivia	:	Ipe, Lapacho
Brazil	:	Ipe, Pau d'Arco
Central America	:	Guayacan
Colombia	:	Canaguate, Polvillo
Ecuador	:	Guayacan
French Guiana	:	Ebene soufre, Ebene verte
Paraguay	:	Lapacho negro
Peru	:	Ebano verde, Tahuari negro
Suriname	:	Groenhart, Wassiba
Trinidad and Tobago	:	Puy, Yellow poui
Venezuela	:	Acapro, Puy
International trade name	:	Ipe, Lapacho, Tabebuia
Distribution	:	Central and Tropical South America, also some of the Lesser Antilles
Tree description		
Length of the bole	:	15-20m, may reach 25m; height of tree: 25-30(40)m
Diameter	:	0.5-0.9(-1.0)m
Shape of the log	:	straight, cylindrical, slender; base with root spurs to buttressed
Wood description		
Sapwood	:	clearly distinct, yellowish to light beige, (2-9cm)
Heartwood	:	light to dark olive brown often with lighter or darker streaks
Grain	:	slightly to very highly interlocked
Texture	:	fine
Remark	:	pores usually contain a green yellow powder (lapachol)

Processing

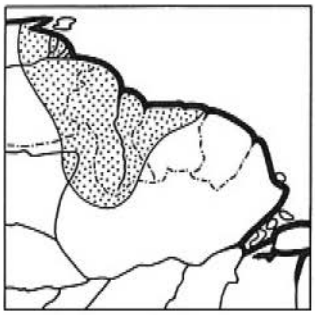
Sawing	:	stock springs badly when green, but saws easily in the dry condition (internal stresses)
Drying	:	air drying easy risks of distortion: slight risks of checking: slight
Machining	:	easy in the dry condition
Finishing	:	good

Natural durability

Resistance to decay	:	poor to moderate
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability	:	good
Uses	:	boxes and crates; cheap furniture; carpentry; interior joinery; interior trim; flooring

71 *Tabebuia insignis* (Miq.) Sandw. var. *monophylla* Sandw. **White cedar**



71. *Tabebuia insignis*

Family	:	Bignoniaceae
Vernacular names		
Guyana	:	Panda, Warakuri, White cedar, Woraccori
French Guiana	:	Bois blanchet, Cedre blanc
Suriname	:	Courali, Johoto, Mattoc, Panda cedoc, Waroekoeli, Warokorie, Zwamp panta
International trade name	:	White cedar, White tabebuia
Distribution	:	The Guianas and adjacent Brazil and Venezuela
Tree description		
Length of the bole	:	12-15m; height of tree: 20-30(-40)m
Diameter	:	0.3-0.45(-1.0)m
Shape of the log	:	not well formed and strongly tapering; often fluted at the base; base swollen or buttressed
Wood description		
Sapwood	:	not clearly distinct from heartwood
Heartwood	:	yellowish or greyish brown with olive or reddish tinge
Grain	:	fairly straight
Texture	:	medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.04
Air-dry density at 12% (g/cm^3)	:	0.67
Basic specific gravity	:	0.57
Total tangential shrinkage (%)	:	7.7
Total radial shrinkage (%)	:	5.8
Total volumetric shrinkage (%)	:	13.7
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	103
Modulus of elasticity at 12% (N/mm^2)	:	15570
Crushing strength at 12% (N/mm^2)	:	57

Technological characteristics

Physical properties

Green density (g/cm³)	:	0.80-1.00
Air-dry density at 12% (g/cm³)	:	0.72
Basic specific gravity	:	0.61
Total tangential shrinkage (%)	:	10.5
Total radial shrinkage (%)	:	4.9
Total volumetric shrinkage (%)	:	15.4

Mechanical properties

Bending strength at 12% (N/mm²)	:	113
Modulus of elasticity at 12% (N/mm²)	:	12630
Crushing strength at 12% (N/mm²)	:	58

Processing

Sawing : easy
blunting effect: moderate

Drying : requires care (air-drying under cover and end coating)
kiln-drying must be handled slowly
U.S. kiln schedule T3-C2 for 25-38 mm (4/4 to 6/4) stock and T3-C1 for 50 mm (8/4) stock; British schedule C (25 mm); or kiln schedule for 41 mm listed below
risks of distortion: more or less high
risks of checking: more or less high
risk of casehardening
movement in service large

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	42	40	88
30	48	44	79
25	52	46	71
20	54	46	65
15	54	46	65

Machining : not difficult; surfaces tend to roughen in planing and shaping

Gluing : good

Nailing : good holding of nails; tends to split

Finishing : good

Veneering : peels and slices satisfactorily

Natural durability

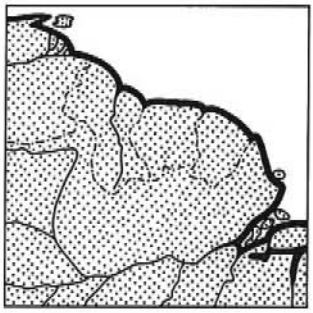
Resistance to decay : moderate but variable

Resistance to termites : poor

Resistance to insects of dry wood : good

Treatability : poor

Uses : interior and exterior joinery; furniture components; flooring; general construction; interior fittings; plywood; formwork; carpentry; cooperage; sleepers



70. *Symphonia globulifera*

Family	:	Guttiferae
Vernacular names		
Guyana	:	Buckwax tree, Karamanni, Maitakin, Manni
Bolivia	:	Azufre, Brea amarilla
Brazil	:	Anani, Canadl, Mani
Central America	:	Barillo, Bario, Leche amarilla, Waika chewstick
Colombia	:	Azufre, Machare
Ecuador	:	Machare, Pucnga, Zaputi
French Guiana	:	Manil, Manil marecage, Manioudou, Mataaki
Peru	:	Azufre, Brea-caspi
Suriname	:	Mani, Mataki
Trinidad and Tobago	:	Mangue
Venezuela	:	Mani, Paraman, Peramancillo
West Indies	:	Boarwood, Hog gum, Palctuvier jaune,
International trade name	:	Mani
Distribution	:	Central and Tropical South America, also the Caribbean
Tree description		
Length of the bole	:	21-24m; height of tree: 25-40m
Diameter	:	0.30-0.55(-1.2)m
Shape of the log	:	straight, cylindrical, slender; in swamp areas stems develop stiltroots with numerous elbow buttresses
Wood description		
Sapwood	:	distinct, yellowish white (2-5cm)
Heartwood	:	beige brown with yellow, green or orange pink tinge
Grain	:	mostly straight, sometimes irregular
Texture	:	medium

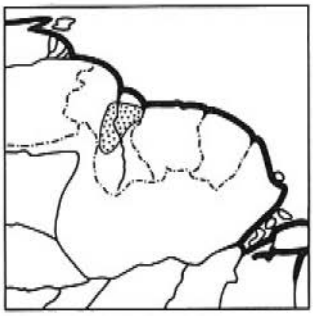
Processing

Sawing	:	power required: tendency for teeth to vibrate and saws overheat; in bandsawing, tooth pitch is recommended blunting effect: moderate to high
Drying	:	slow kiln schedule for 25mm use British schedule B risks of distortion: slight risks of checking: more or less high
Machining	:	difficult due to hardness and interlocked grain power required; reduction of cutting angle to 20 degrees is recommended for planing
Nailing	:	pre-boring necessary
Finishing	:	good

Natural durability

Resistance to decay	:	good to very good
Resistance to termites	:	good
Resistance to insects of dry wood	:	good

Treatability	:	poor
Uses	:	inlay; cabinet work; walking sticks; parquet flooring; bag pipes; turnery; violin bows; fine furniture; cutlery; marquetry; musical instruments; interior trim



69. *Swartzia leiocalycina*

Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Awartu, Brown ebony, Clubwood, Ironwood, Shiraip, Wamara
International trade name	:	Wamara
Distribution	:	Guyana
Tree description		
Length of the bole	:	18-21m; height of tree: 20-35(15)m
Diameter	:	0.40-0.75m
Shape of the log	:	straight, often slightly fluted; base buttressed
Wood description		
Sapwood	:	distinct, nearly white or yellow (7-8cm)
Heartwood	:	dark brown to pale reddish purple or purplish brown, occasionally with dark olive or purplish brown stripes
Grain	:	straight but variable
Texture	:	medium to very fine
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.20
Air-dry density at 12% (g/cm^3)	:	1.06
Basic specific gravity	:	0.87
Total tangential shrinkage (%)	:	5.1-6.5
Total radial shrinkage (%)	:	3.1-4.0
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	213
Modulus of elasticity at 12% (N/mm^2)	:	23630
Crushing strength at 12% (N/mm^2)	:	110

Technological characteristics

Physical properties	:	*S. benthamiana*
Green density (g/cm³)	:	1.20
Air-dry density at 12% (g/cm³)	:	0.89
Basic specific gravity	:	0.78
Total volumetric shrinkage (%)	:	14.0
Mechanical properties		
Bending strength at 12% (N/mm²)	:	163
Crushing strength at 12% (N/mm²)	:	85

Processing

Sawing	:	power required
Drying	:	no information; probably similar to drying of *Swartzia leiocalycina* Benth., slow rate risks of distortion: slight risks of checking: more or less high
Machining	:	difficult because of hardness; power required
Nailing	:	pre-boring necessary
Finishing	:	good

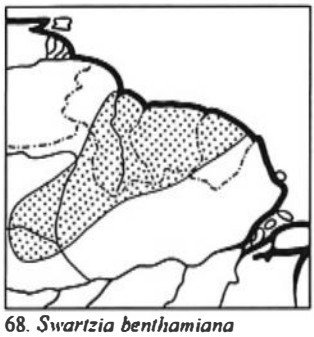
Natural durability

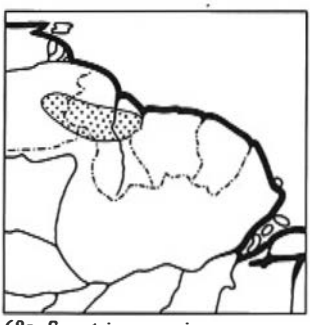
Resistance to decay	:	very good
Resistance to termites	:	very good
Resistance to insects of dry wood	:	good

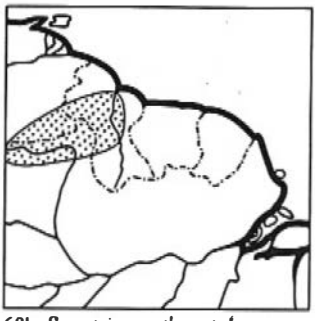
Treatability : poor

Uses : inlay; cabinet work; walking sticks; parquet flooring; bag pipes; violin bows; turnery; fine furniture; cutlery; marquetry; musical instruments; interior trim

68 ***Swartzia benthamiana*** Miq. **Itikiboroballi**
68a ***Swartzia sprucei*** Benth. **Itikiboroballi**
68b ***Swartzia xanthopetala*** Sandw. **Itikiboroballi**


68. *Swartzia benthamiana*


68a. *Swartzia sprucei*


68b. *Swartzia xanthopetala*

Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Itikiboroballi, Morompo, Okraprabu
Brazil	:	Mututuy da terra firma, Saboarana
French Guiana	:	Goue-goue, Montouchi
Suriname	:	Itiki boeroeballi
Venezuela	:	Barbasco, Canasposo, Conigrio
International trade name	:	Saboarana (68, 68a, 68b)
Distribution	:	The Guianas, Venezuela and Brazil
Tree description		
Length of the bole	:	15-18m; height of tree: 27-34m
Diameter	:	0.3-0.6m
Shape of the log	:	straight, cylindrical, sometimes slightly flat in form; base often swollen
Wood description		
Sapwood	:	distinct, very wide, nearly white
Heartwood	:	chocolate brown to pale reddish brown or purplish brown, occasionally marked by dark olive or purplish brown stripes
Grain	:	generally straight but may be variable
Texture	:	medium to very fine
Remark	:	logs have small diameter and wide sapwood

Technological characteristics

Physical properties	:	*S. pruriens*
Green density (g/cm³)	:	0.95
Air-dry density at 12% (g/cm³)	:	0.64
Basic specific gravity	:	0.54
Total tangential shrinkage (%)	:	10.0
Total radial shrinkage (%)	:	5.0
Total volumetric shrinkage (%)	:	16.4
Mechanical properties		
Bending strength at 12% (N/mm²)	:	104
Modulus of elasticity at 12% (N/mm²)	:	12650
Crushing strength at 12% (N/mm²)	:	55

Processing

Sawing	:	easy blunting effect: very slight
Drying	:	must be handled slowly U.S. kiln schedule T2-D4 for 25-38 mm (4/4 to 6/4) stock and T2-D3 for 50 mm (8/4) stock or British schedule A (25 mm) risks of distortion: more or less high risks of checking: slight
Machining	:	not difficult; woolly surface; sharp cutters recommended
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	filling required
Veneering	:	peels well

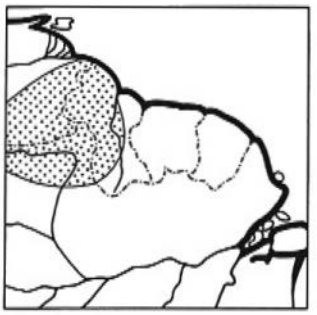
Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

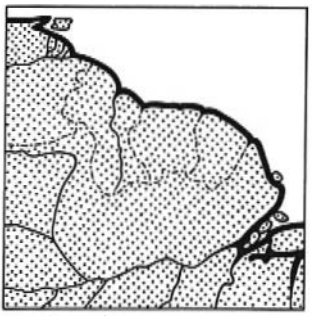
Treatability : good

Uses : plywood; interior joinery; boxes and crates; interior trim; light carpentry; blockboard; particleboard; paper pulp; formwork; furniture components; coffins

67 ***Sterculia rugosa*** R.Br. **Rough-leaf maho**
67a ***Sterculia pruriens*** (Aublet) Schumann **Smooth-leaf maho**



67. *Sterculia rugosa*



67a. *Sterculia pruriens*

Family	:	Sterculiaceae
Vernacular names		
Guyana	:	Kara, Maho, Ranai, Rough-leaf maho, Saraurai, Sekerau, Smooth-leaf maho, Yahu
Brazil	:	Chicha brava, Enviveira
Central America	:	Castaño
French Guiana	:	Ivira, Kobe, Mahot cochon, Tourou
Panama	:	Panama
Suriname	:	Kobe, Okro-oedoe
Venezuela	:	Chicha, Majagua
West Indies	:	Maho
International trade name	:	Kobe (67, 67a)
Distribution	:	Central and Tropical South America, also the Caribbean
Tree description		
Length of the bole	:	18-21m; height of tree: 30m, may reach 40m
Diameter	:	0.3-0.9(-1)m
Shape of the log	:	straight, cylindrical with a small taper; base low buttressed
Wood description		
Sapwood	:	not clearly distinct from heartwood (10-15cm)
Heartwood	:	variable in colour, pink grey, ochre beige or light reddish brown
Grain	:	generally straight
Texture	:	coarse

Technological characteristics

Physical properties

Green density (g/cm^3)	:	1.02
Air-dry density at 12% (g/cm^3)	:	0.68
Basic specific gravity	:	0.56
Total tangential shrinkage (%)	:	9.3
Total radial shrinkage (%)	:	4.6
Total volumetric shrinkage (%)	:	13.1

Mechanical properties

Bending strength at 12% (N/mm^2)	:	94
Modulus of elasticity at 12% (N/mm^2)	:	13092
Crushing strength at 12% (N/mm^2)	:	57

Processing

Sawing	:	easy blunting effect: slight
Drying	:	rapid air-drying; moderate warp and slight checking
Machining	:	good, finishes smoothly if not severely interlocked grain, sawn surfaces are somewhat fuzzy
Nailing	:	good holding of nails

Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability : poor

Uses : light construction; furniture

Mechanical properties

Bending strength at 12% (N/mm²)	:	139
Modulus of elasticity at 12% (N/mm²)	:	13500
Crushing strength at 12% (N/mm²)	:	66

Processing

Sawing	:	power required blunting effect: moderate to fairly high (silica content: 0.05-0.09%)
Drying	:	rather slow; requires care risks of distortion: slight risks of checking: more or less high movement in service large
Machining	:	planing more or less difficult because of interlocked grain and silica; special tools recommended
Gluing	:	good
Nailing	:	holding of nails variable; tends to split; pre-boring necessary
Finishing	:	good

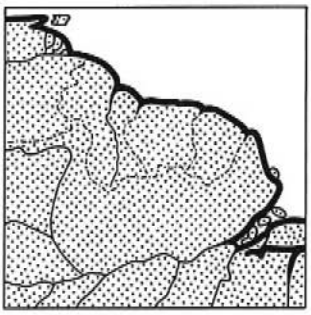
Natural durability

Resistance to decay	:	good
Resistance to termites	:	good
Resistance to insects of dry wood	:	good

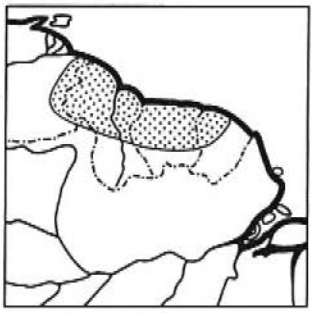
Treatability	:	poor
Uses	:	flooring; stairs; interior and exterior joinery; carpentry; heavy construction; bridge decking; wagon trays; interior trim; furniture; sleepers; cabinet work

77 ***Trattinickia rhoifolia*** Willd. **Ulu**

77a ***Trattinickia demerarae*** Sandw. **Thick-skin ulu**



77. *Trattinickia rhoifolia*



77a. *Trattinickia demerarae*

Family : Burseraceae

Vernacular names

Guyana : Bastard kurokai, Thin-skin ulu, Thick skin ulu (*T. demerarae*), Ulu, Wayuma (*T. rhoifolia*)

Brazil : Amesclao, Morcegueira

French Guiana : Encens gris, Gambouchi, Grandmoni, Moni

Suriname : Awaloe-pisi, Ollo, Tingimoni

International trade name : Amesclao (77, 77a), Ulu (77, 77a)

Distribution : Northern South America (77); the Guianas and Venezuela (77a)

Tree description

Length of the bole : 21-24m; height of tree: 20-30(-40)m

Diameter : 0.4-1.0m

Shape of the log : cylindrical; unbuttressed or with low and thick buttresses

Wood description

Sapwood : not clearly distinct, grey white

Heartwood : grey white to pale beige with a pinkish tinge

Grain : rather straight often widely and regularly interlocked

Texture : medium

Technological characteristics

Physical properties	:	*T. rhoifolia*	*T. demerarae*
Air-dry density at 12% (g/cm^3)	:	0.59	0.46
Basic specific gravity	:	0.51	
Total tangential shrinkage (%)		8.2	6.6
Total radial shrinkage (%)	:	4.4	3.6
Total volumetric shrinkage (%)	:	12.9	

Mechanical properties	:	*T. rhoifolia*	*T. demerarae*
Bending strength at 12% (N/mm²)	:	94	68
Modulus of elasticity at 12% (N/mm²)	:	11570	9340
Crushing strength at 12% (N/mm²)	:	47	37

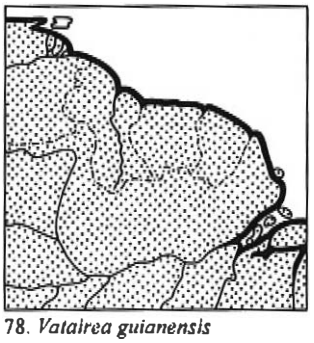
Processing

Sawing	:	easy, surface often woolly blunting effect: high (silica)
Drying	:	requires care risks of distortion: slight risks of checking: slight to high
Machining	:	some difficulties in the presence of highly interlocked grain (tearing); special tools recommended (silica)
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good
Veneering	:	peels satisfactorily

Natural durability

Resistance to decay	:	poor
Resistance to termites	:	moderate
Resistance to insects of dry wood	:	poor

Treatability	:	poor to moderate
Uses	:	interior joinery; plywood (interior plies); formwork; light carpentry; boxes and crates; interior trim; cheap furniture



78. *Vatairea guianensis*

Synonym	:	*Vatairea surinamensis* Kleinh.
Family	:	Leguminosae (Papilionoideae)
Vernacular names		
Guyana	:	Arakaka, Arisauro, Yaksaru
Brazil	:	Angelim, Angelim amargosa, Aracuy, Fava amarela, Faveira amarela
Central America	:	Amargo
Colombia	:	Magui
French Guiana	:	Inkassa, Yongo
Suriname	:	Arisoeroe, Gele kabbes, Gell kabissi
International trade name	:	Arisauro
Distribution	:	Central America to Brazil
Tree description		
Length of the bole	:	15-18m; height of tree: 15-30m
Diameter	:	0.2-0.5(-0.7)m
Shape of the log	:	cylindrical base with low root spurs or buttressed
Wood description		
Sapwood	:	distinct, whitish, greyish, or brownish-yellow
Heartwood	:	yellow when fresh; darkening on exposure to orange-brown to dark brown
Grain	:	straight to strongly interlocked
Texture	:	coarse to very coarse

The following data also include *Vatairea lundellii* (Standl.) Killip which is similar to *Vatairea guianensis* in appearance and technical properties.

Technological characteristics

Physical properties	:	*V. guianensis*	*V. lundellii*
Green density (g/cm³)	:	-	1.07
Air-dry density at 12% (g/cm³)	:	0.76	0.74
Basic specific gravity	:	0.56	0.55
Total tangential shrinkage (%)	:	3.2 *	7.4
Total radial shrinkage (%)	:	1.2 *	3.4
Total volumetric shrinkage (%)	:	-	8.6
Mechanical properties			
Bending strength at 12% (N/mm²)	:	79	101
Modulus of elasticity at 12% (N/mm²)	:	10100	12357
Crushing strength at 12% (N/mm²)	:	41	48

Processing

Sawing	:	easy blunting effect: slight
Drying	:	moderate air-drying risks of distortion: slight risks of checking: slight
Machining	:	easy to moderate; poor in planing operations
Nailing	:	good holding of nails

Natural durability

Resistance to decay	:	moderate to good

Treatability : poor

Uses : interior and exterior construction; furniture; general carpentry; sleepers

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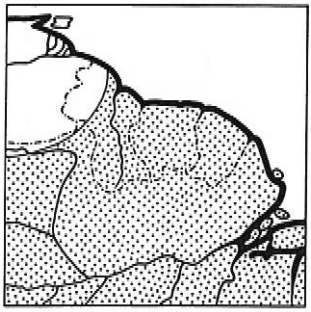
* Not total shrinkage, but shrinkage from green to 15% MC.



79. *Virola michelii*

Synonym	:	*V. melinonii* (Benoist) A.C. Smith
Family	:	Myristicaceae
Venacular names		
Guyana	:	Dalli, Hill dalli, Irikwa
Brazil	:	Bccuiba, Ucuuba da terra firma, Virola
French Guiana	:	Bouchi mouloumba, Matou mouloumba, Yayamadou grand bois, Yayamadou montagne
Suriname	:	Baboen, Hoogland baboen, Pintrie
International trade name	:	Baboen, Virola
Distribution	:	The Guianas and Brazil
Tree description		
Length of the bole	:	15-20m; height of tree: 25-35m
Diameter	:	0.4-0.6(-1.0)m
Shape of the log	:	straight and cylindrical; with low buttresses
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	beige to pale brown
Grain	:	straight
Texture	:	medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	0.65-0.90
Air-dry density at 12% (g/cm^3)	:	0.56
Basic specific gravity	:	0.47
Total tangential shrinkage (%)	:	9.4
Total radial shrinkage (%)	:	5.4
Total volumetric shrinkage (%)	:	16.3

Mechanical properties

Bending strength at 12% (N/mm²)	:	78
Modulus of elasticity at 12% (N/mm²)	:	10070
Crushing strength at 12% (N/mm²)	:	40

Processing

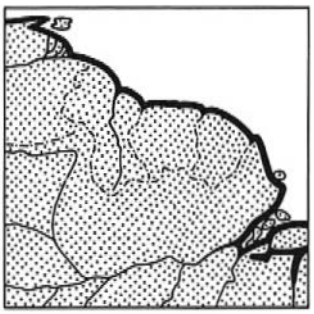
Sawing	:	easy blunting effect: very slight
Drying	:	reported moderately difficult; requires care U.S. kiln schedule T3-C2 for 25-38 mm (4/4 to 6/4) stock and T3-C1 for 50 mm (8/4) stock or British schedule C (25 mm) risks of distortion: more or less high risks of checking: more or less high risks of collapse and casehardening particularly in thick stocks movement in service large
Machining	:	easy
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good
Veneering	:	peels well

Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability	:	good
Uses	:	plywood; interior joinery; moulding; boxes and crates; matches; light carpentry; particleboard; fibreboard; cheap furniture; formwork; cigar boxes; coffins

80 *Virola surinamensis* (Rolander) Warb. **Swamp dalli**



80. *Virola surinamensis*

Family	:	Myristicaceae
Vernacular names		
Guyana	:	Baboonwood, Dalli, Dollywood, Irikwa, Swamp dalli, Warishi, We
Brazil	:	Bicuhyba, Ucuuba, Virola
Central America	:	Banak, Bogamani, Cebo, Palo de sangre, Sangre
Colombia	:	Nuanamo, Otobo, Sebo
Ecuador	:	Chaliviande, Cuangare, Shempo, Tzimbo
French Guiana	:	Guingamadou, Mouloumba, Yayamadou marecage
Peru	:	Cumala
Suriname	:	Baboen, Moonba, Waroes
Venezuela	:	Camaticaro, Cuajo, Otivo, Virola
International trade name	:	Baboen, Virola
Distribution	:	Central and Tropical South America, also the Caribbean
Tree description		
Length of the bole	:	18-24m; height of tree: 20-25(-40)m
Diameter	:	0.4-0.8(-1.5)m
Shape of the log	:	usually straight and cylindrical; spreading plank buttresses
Wood description		
Sapwood	:	not distinct from heartwood
Heartwood	:	beige to pale brown when fresh, darker on drying from pinkish to deep reddish brown
Grain	:	straight
Texture	:	medium

Technological characterlstics

Physical properties

Green density (g/cm^3)	:	0.65-0.90
Air-dry density at 12% (g/cm^3)	:	0.46
Basic specific gravity	:	0.38
Total tangential shrinkage (%)	:	9.6
Total radial shrinkage (%)	:	6.1
Total volumetric shrinkage (%)	:	15.3

Mechanical properties

Bending strength at 12% (N/mm^2)	:	64
Modulus of elasticity at 12% (N/mm^2)	:	8730
Crushing strength at 12% (N/mm^2)	:	33

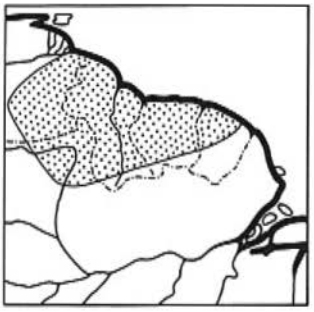
Processing

Sawing	:	easy blunting effect: very slight
Drying	:	reported moderately difficult; requires care U.S. kiln schedule T3-C2 for 25-38 mm (4/4 to 6/4) stock and T3-C1 for 50 mm (8/4) stock or British schedule C (25 mm) risks of distortion: more or less high risks of checking: more or less high risks of collapse and casehardening particularly in thick stocks movement in service large
Machining	:	easy
Gluing	:	good
Nailing	:	good holding of nails
Finishing	:	good
Veneering	:	peels well

Natural durability

Resistance to decay	:	poor
Resistance to termites	:	poor
Resistance to insects of dry wood	:	poor

Treatability	:	good
Uses	:	plywood; interior joinery; moulding; boxes and crates; matches; light carpentry; particleboard; fibreboard; cheap furniture; cigar boxes; coffins

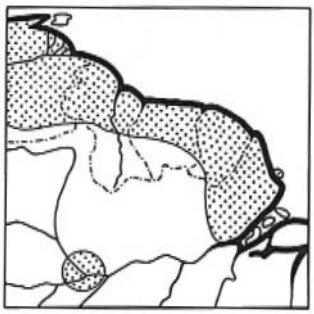


81. *Vitex stahelii*

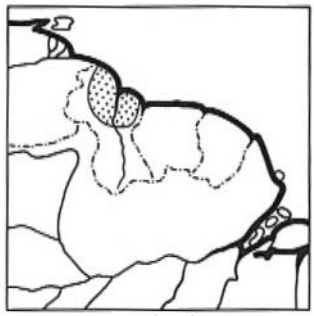
Family	:	Verbenaceae
Vernacular names		
Guyana	:	Hakiaballi
Venezuela	:	Totumillo
International trade name	:	Hakiaballi
Distribution	:	the Guianas and Venezuela
Tree description		
Length of the bole	:	15-21m; height of tree: 20-40(-45)m
Diameter	:	0.3-0.6m
Shape of the log	:	cylindrical or crooked and fluted; base with root spurs
Wood description		
Sapwood	:	whitish to light pale brown
Heartwood	:	distinct, dark brown
Grain	:	straight, sometimes irregular
Texture	:	fine to medium
Technological characteristics		
Physical properties		
Green density (g/cm^3)	:	1.12
Air-dry density at 12% (g/cm^3)	:	0.67
Basic specific gravity	:	0.60
Total tangential shrinkage (%)	:	8.7
Total radial shrinkage (%)	:	3.5
Total volumetric shrinkage (%)	:	12.8
Mechanical properties		
Bending strength at 12% (N/mm^2)	:	122
Modulus of elasticity at 12% (N/mm^2)	:	16652
Crushing strength at 12% (N/mm^2)	:	75

Processing		
Sawing	:	easy blunting effect: slight
Drying	:	difficult to air-dry risks of distortion: more or less high risks of checking: more or less high
Machining	:	easy; good results obtained in all operations
Nailing	:	good holding of nails
Finishing	:	good
Veneering	:	possibly good
Natural durability		
Resistance to decay	:	good
Resistance to termites	:	good
Resistance to insects of dry wood	:	good
Treatability	:	poor
Uses	:	heavy durable construction; flooring; veneer and plywood; millwork; furniture

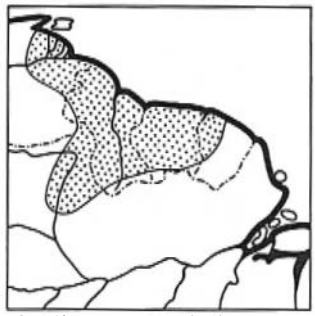
82	***Vochysia surinamensis*** Stafleu	**Iteballi**
82a	***Vochysia schomburgkii*** Warm.	**Iteballi**
82b	***Vochysia tetraphylla*** (G. Meyer) DC.	**Iteballi**



82. *Vochysia surinamensis*



82a. *Vochysia schomburgkii*



82b. *Vochysia tetraphylla*

Family	:	Vochysiaceae
Vernacular names		
Guyana	:	Deokunud, Hill iteballi (*V. surinamensis*), Iteballi
Brazil	:	Quaruba
French Guiana	:	Grignon fou, Kouali, Papakaie kouali (*V. tetraphylla*), Wana kouali (*V. surinamensis*)
Suriname	:	Kwari, Wana kwari (*V. surinamensis*), Watra kwari (*V. tetraphylla*)
Venezuela	:	Lacre montanera
International trade name	:	Iteballi (82, 82a, 82b), Kwari (82, 82a, 82b), Quaruba (82, 82a, 82b)
Distribution	:	The Guianas, Venezuela and adjacent Brazil
Tree description		
Length of the bole	:	15-21m, up to 25m (*V. surinamensis*); 10m (*V. tetraphylla*); height of tree: 25-30(-40)m
Diameter	:	0.3-0.55(-0.9) (*V. surinamensis*); 0.2-0.35m (*V. schomburgkii*); 0.3-1.0m (*V. tetraphylla*)
Shape of the log	:	straight, cylindrical, slender; unbuttressed or basally swollen (*V. surinamensis*); usually short and strongly tapered, often bent (*V. tetraphylla*)
Wood description		
Sapwood	:	distinct, pale yellow or grey (*V. surinamensis*); not clearly distinct (*V. tetraphylla*)
Heartwood	:	pale pink brown darkening to golden brown often with yellow stripes (*V. surinamensis*); light brown (*V. tetraphylla*)
Grain	:	generally straight or slightly interlocked
Texture	:	rather coarse

Technological characteristics

Physical properties	:	*V. tetraphylla*		
Green density (g/cm^3)	:	0.98		
Air-dry density at 12% (g/cm^3)	:	0.58	-	0.62*
Basic specific gravity	:	0.48		
Total tangential shrinkage (%)	:	9.5		
Total radial shrinkage (%)	:	3.5	-	3.5*
Total volumetric shrinkage (%)	:	12.8		
Mechanical properties				
Bending strength at 12% (N/mm^2)	:	78-81		
Modulus of elasticity at 12% (N/mm^2)	:	9179	-	9700*
Crushing strength at 12% (N/mm^2)	:	43-45		

Processing

Sawing : easy; woolly surface
blunting effect: very slight

Drying : kiln-drying difficult and slow; quarter sawing and slow drying are recommended
U.S. kiln schedule T2-D4 for 25-38 mm (4/4 to 6/4) stock and T2-D3 for 50 mm (8/4) stock; British schedule A (25 mm); or kiln schedule for 41mm listed below
risks of distortion: more or less high
risks of checking: more or less high

Moisture content of wood (%)	Temperature dry bulb (°C)	Temperature wet bulb (°C)	Relative humidity of air (%)
Green	44	41	85
60	44	40	80
40	46	42	75
35	46	41	65
30	49	42	65
25	52	43	60
20	55	45	55
15	58	46	50

Machining : easy; necessity to keep sharp cutting edges to avoid woolly surfaces
Gluing : good
Nailing : good holding of nails
Finishing : good
Veneering : peels well

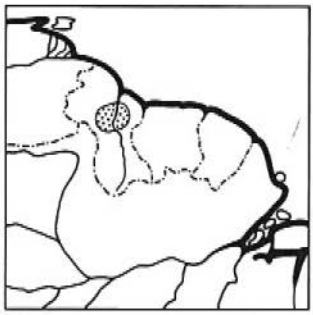
Natural durability

Resistance to decay : poor
Resistance to termites : poor
Resistance to insects of drywood : poor

Treatability : moderate to good

Uses : boxes and crates; utility plywood; interior joinery; wainscoting; light carpentry; cheap furniture

* Data from two different reference sources



83. *Vouacapoua macropetala*

Family	:	Leguminosae (Caesalpinioideae)
Vernacular names		
Guyana	:	Sarebebeballi
International trade name	:	Sarebebeballi (*V. macropetala*). Wacapou (*V. americana*)
Distribution	:	Guyana (*V. macropetala*), Amazon Basin and the Guianas (*V. americana*)
Tree description		
Length of the bole	:	15m, up to 20m; height of tree: 25-30m
Diameter	:	0.4-0.6(-1.0)m
Shape of the log	:	straight, more or less cylindrical, somewhat fluted; small buttresses
Wood description		
Sapwood	:	distinct, cream coloured (2-4cm)
Heartwood	:	dark yellowish brown (*V. macropetala*); dark brown to reddish brown figured with fine light parenchyma lines (*V. americana*)
Grain	:	straight
Texture	:	fine to medium (*V. macropetala*); coarse (*V. americana*)

The following data are based on *V. americana* Aublet which is similar to *V. macropetala* in appearance and technical properties.

Technological characteristics		
Physical properties	:	*V. americana*
Green density (g/cm^3)	:	1.05-1.15
Air-dry density at 12% (g/cm^3)	:	0.92
Basic specific gravity	:	0.82
Total tangential shrinkage (%)	:	6.5
Total radial shrinkage (%)	:	4.2
Total volumetric shrinkage (%)	:	12.2

Mechanical properties

Bending strength at 12% (N/mm^2)	:	164
Modulus of elasticity at 12% (N/mm^2)	:	15940
Crushing strength at 12% (N/mm^2)	:	82

Processing

Sawing	:	power required; possible internal stresses blunting effect: moderate
Drying	:	must be handled with care and slowly; initial air-seasoning recommended to reduce the time of drying U.S. kiln schedule T7-B3 for 25-38 mm (4/4 to 6/4) stock (*V. americana*) risks of distortion: slight risks of checking: slight movement in service medium
Machining	:	power required; some difficulties due to hardness; special tools recommended
Gluing	:	special precaution needed (dry wood and smooth surface)
Nailing	:	pre-boring necessary; good holding of nails
Finishing	:	good
Veneering	:	interesting for slicing; veneer rather brittle

Natural durability

Resistance to decay	:	very good
Resistance to termites	:	very good
Resistance to insects of dry wood	:	very good
Remark	:	resistant to marine borers in Panama waters
Treatability	:	poor
Uses	:	fine furniture; cabinet work; flooring; stairs; cutlery; decorative trim; turnery; brush backs; wainscoting; sleepers; poles and posts; heavy carpentry; harbour or naval construction; joinery

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APPENDIX I Assembled British standard kiln-drying schedules

British schedules have been listed for many of the woods not native to the United States and Canada (Sections III-VI). Following is a listing of the assembled British Princess Risborough Laboratory schedules as published in Pratt, G.H., *Timber Drying Manual, 1974*, Building Research Establishment, Department of the Environment, HMSO, London.

	Temperature °C			Temperature °F	
Moisture content	Dry-bulb	Wet-bulb	Relative humidity (approx.)	Dry-bulb	Wet-bulb
Percent			*Percent*		
		SCHEDULE A			
Green	35	30.5	70	95	87
60	35	28.5	60	95	83
40	40	31.0	50	104	88
30	45	32.5	40	113	91
20	50	35.0	35	122	95
15	60	40.5	30	140	105
		SCHEDULE B			
Green	40	37.5	85	104	100
40	40	36.5	80	104	98
30	45	40.5	75	113	105
25	50	44.0	70	122	111
20	55	46.0	60	131	115
15	60	47.5	50	140	118
		SCHEDULE C			
Green	40	37.5	85	104	100
60	40	36.5	80	104	98
40	45	40.5	75	113	105
35	45	39.5	70	113	103
30	45	38.5	65	113	101
25	50	42.0	60	122	107
20	60	47.5	50	140	118
15	65	48.5	40	149	119
		SCHEDULE D			
Green	40	37.5	85	104	100
60	40	36.5	80	104	98
40	40	35.0	70	104	95
35	45	37.5	60	113	99
30	45	35.0	50	113	95
25	50	36.5	40	122	98
20	60	40.5	30	140	105
15	65	44.0	30	149	111

Moisture content	Temperature °C			Temperature °F	
	Dry-bulb	Wet-bulb	Relative humidity (approx.)	Dry-bulb	Wet-bulb
Percent			*Percent*		
		SCHEDULE E			
Green	50	47.0	85	122	117
60	50	46.0	80	122	115
40	50	45.0	75	122	113
30	55	47.5	65	131	118
25	60	49.0	55	140	121
20	70	54.5	45	158	130
15	75	57.5	40	167	136
		SCHEDULE F			
Green	50	45.0	75	122	113
60	50	44.0	70	122	111
40	50	42.0	60	122	107
30	55	43.5	50	131	110
25	60	46.0	45	140	115
20	70	52.5	40	158	127
15	75	57.5	40	167	136
		SCHEDULE G			
Green	50	47.0	85	122	117
60	50	46.0	80	122	115
40	55	51.0	80	131	124
30	60	54.5	75	140	130
25	70	62.5	70	158	145
20	75	62.5	55	167	145
15	80	61.0	40	176	141
		SCHEDULE H			
Green	60	55.5	80	140	132
50	60	54.5	75	140	130
40	60	52.0	65	140	126
30	65	53.5	55	149	129
20	75	57.5	40	167	136
		SCHEDULE J			
Green	60	53.0	70	140	128
50	60	50.5	60	140	123
40	60	47.5	50	140	118
30	65	48.5	40	149	119
20	75	52.0	30	167	126
		SCHEDULE K			
Green	70	65.0	80	158	149
50	75	67.0	70	167	153
30	80	68.5	60	176	155
20	90	69.0	40	194	156

Moisture content	Temperature °C			Temperature °F	
	Dry-bulb	Wet-bulb	Relative humidity (approx.)	Dry-bulb	Wet-bulb
Percent			*Percent*		
			SCHEDULE L		
Green	80	72.0	70	176	161
40	90	69.0	40	194	156
			SCHEDULE M		
Green	90	81.0	70	194	178
50	95	78.0	50	203	172

APPENDIX II Kiln schedules

Most modern dry kilns are designed to control temperature (dry bulb), relative humidity (wet-bulb 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 E1 and E2). 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 articular hardwoods.

* Rasmussen, E.G. (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
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 depression 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 depression 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