

NON-WOOD FOREST PRODUCTS

16

Rattan glossary

by

Dennis V. Johnson

FAO Consultant

and Compendium glossary with emphasis on Africa

by
Terry C.H. Sunderland
African Rattan Research Programme
Limbe Botanic Garden
Cameroon

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

ISBN 92-5-105095-3

All rights reserved. Reproduction and dissemination of material in this information product for educational or other non-commercial purposes are authorized without any prior written permission from the copyright holders provided the source is fully acknowledged. Reproduction of material in this information product for resale or other commercial purposes is prohibited without written permission of the copyright holders. Applications for such permission should be addressed to the Chief, Publishing Management Service, Information Division, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy or by e-mail to copyright@fao.org

© FAO 2004

CONTENTS

INTRODUCTION	1
Explanatory notes	1
GLOSSARY	2
RATTAN RESOURCES	2
Biology and systematics	2
Anatomy and morphology	7
Physiology	10
Management and plantations	11
Harvesting	13
RATTAN AS A RAW MATERIAL	15
Grading, classification and general terms	15
Post-harvest handling	21
Storage Trade	22
Transport	22 23
PROCESSING	
For local artisanal uses	23
Industrial level furniture manufacturing	23 34
TRADE	26
MISCELLANEOUS	27
VERNACULAR NAMES	29
Cross-listing: genus/species to vernacular names	40
APPENDIX I - Classification of palm family (Palmae) rattan genera	44
APPENDIX II - Rattan genera, species and geographic distribution	45
APPENDIX III - Utilized Calamus species	46
APPENDIX IV - Utilized Daemonorops species	49
APPENDIX V - Other utilized cane species	50
APPENDIX VI - Philippine standard specifications for rattan and	
wicker furniture	51
APPENDIX VII - A chronology of major rattan meetings	55
BIBLIOGRAPHY	57
COMPENINTIAN OF OCCUPATIONS ON DATE AND TERRAL PROPERTY AND THE PROPERTY OF TH	
COMPENDIUM GLOSSARY ON RATTAN TERMS IN AFRICA	61
RATTAN RESOURCES	61
Biology and systematics	61
Anatomy and morphology Physiology	62 63
Physiology Management and plantations	63
Harvesting	64
RATTAN AS A RAW MATERIAL	64
Trade	64
Transport	65

PROCESSING	65
At local artisanal level	65
MISCELLANEOUS	65
VERNACULAR NAMES	65
The rattans of Africa - summary of taxonomy and utilization	67
Cross-listing of rattan genus/species to vernacular names by country (language in parentheses)	69
Life form and intermediate folk classification of rattan canes in selected African language groups	72.
Selected cane products and their nomenclature	73
Summary of the non-cane uses of African rattans	74
Currently recognized names and synonyms for African rattans	75
BIBLIOGRAPHY	77

FOREWORD

There are more than 600 species of rattans, of which only about 10 percent are traded internationally. A wide variety of terms and terminologies are used in the rattan sector worldwide, often with different meanings, or which are not well understood by many rattan users. An expert consultation on rattan, organized in December 2000 in Rome by FAO and the International Network for Bamboo and Rattan (INBAR) proposed a number of immediate steps to promote the sustainable use of rattan. One of the conclusions of the meeting was that there is a need to compile and clarify terms and definitions used in the management, utilization, processing and trade of rattans and their products among the many stakeholders in the various countries.

In follow-up, FAO contacted Dennis Johnson, a world-known palm specialist, who kindly accepted FAO's call to compile a glossary on terms, concepts and definitions related to rattan and its products. The glossary is structured according to the following major sections: rattan resources (biology, management, plantations, harvesting); rattan as a raw material (transport, storage, grading and post-harvest handling, rattan trade); rattan processing (for local artisanal uses; for industrial level furniture manufacturing); and rattan trade in raw, furniture and other products. In order to give special emphasis to the emerging rattan sector in Africa, FAO subsequently contracted Terry Sunderland, a well-known rattan specialist in Africa, who kindly prepared a separate compilation of terms specifically focusing on those used in Africa.

FAO wishes to thank the two authors for their work and is pleased to publish and disseminate this rattan glossary in support of the development of the rattan sector worldwide.

Wulf Killmann
Director
FAO Forest Products and Economics Division

ACKNOWLEDGMENTS

The Rattan Glossary

The successful completion of this glossary is due in no small measure to the cooperation and assistance of a number of individuals and their respective institutions. Paul Vantomme and Wulf Killmann of FAO generously provided guidance and direction to the overall project. Others who willingly furnished me with advice and information on various aspects of the rattan information contained herein include: Raja Barizan, Brian Belcher, Tom Evans, Fu Jinha, Domingo Madulid, Johanis Mogea and Terry Sunderland. I am indebted to John Dransfield, Walter Liese and N. Manokaran, each of whom reviewed the manuscript and made valuable suggestions for improvement. My sincere thanks to each of those named. I accept responsibility for any remaining errors in this document.

Dennis V. Johnson

The Compendium Glossary on Rattan Terms in Africa

Particular thanks are extended to Stella Asaha and Michael Balinga for their comments and additions to an earlier draft of this document.

Terry C.H. Sunderland

INTRODUCTION

This document contains two sections. The first section is a glossary of rattan terms mostly from Southeast Asia (especially Malaysia). It is more than simply a compilation of over 500 terms and definitions relative to rattans and their utility; also included are some 425 vernacular names, and a listing of miscellaneous terms that may be encountered in the rattan literature. Seven appendixes provide information on the systematics and geographic distribution of rattans, data on reported utilization of rattans for canes and other purposes, an example of standard specifications for rattan furniture and a chronological record of technical rattan meetings since 1979, when the modern era of rattan development can be said to have begun. The bibliography includes most of the major modern publications on rattans. The second section is a compendium glossary on rattan terms with special emphasis on Africa that was compiled separately, but following the same structure as the first glossary. Although this has created some overlap with respect to terms, vernacular and botanical names, readers may find it useful also to have an overview of rattan terms by region.

EXPLANATORY NOTES

Traditionally, the New World palm genus *Desmoncus* is excluded from consideration in rattanrelated documents because it is not a true rattan. However, there is strong justification for its inclusion in this glossary. All species of *Desmoncus*, with one exception, are characterized by having climbing stems, and these stems have end-uses comparable to the Old World rattans, although on a much smaller scale and generally only at the local level.

The glossary terms and definitions are organized under six major headings and twelve subheadings. Determination of which subheading to use for certain terms presented some difficulty. In such cases, the subheading with which the term is most closely associated has been used. Users are advised to consult other subheadings if the term they seek is not where they had expected to find it.

The vernacular names included are primarily from Southeast Asia, which is a reflection of the greater commercial importance of rattans in that region. To provide full coverage, a comparatively small number of common names from East Asia, South Asia, Africa and Latin America are listed.

Precautions should be taken in using vernacular names to attempt to identify rattan genera and species. Many names, especially those derived from the trade, are employed to refer to multiple species of rattan having similar physical characteristics. In certain instances, vernacular names are erroneously applied. Despite the uncertainty often associated with many of the vernacular names, they are essential to know because they are the designations used by local people in exploiting, managing and developing rattan resources.

GLOSSARY

Note: the following abbreviations are used below:

cf. - compare; e.g. - for example; i.e. - that is; q.v. - which see.

The language from which a term is derived is given in parenthesis, as appropriate.

RATTAN RESOURCES

BIOLOGY AND SYSTEMATICS

Acropetal Referring to the maturity of rattan flowers and fruits proceeding from the

base to the apex.

Adnate United with another part; with unlike parts fused; e.g. ovary and calyx

tube.

Albumen An old term used for the endosperm.

Anatropous An ovule bent parallel to its stalk (stem) so that the micropyle is adjacent to

the hilum.

Ancistrophyllinae The palm subtribe that includes the rattan genera Eremospatha, Laccosperma

and Oncocalamus.

Ancistrophyllum A synonym of the rattan genus Laccosperma.

Androecium Collective term for the stamens as a unit of the flower.

Antepetalous Opposite the petals.

Antesepalous Opposite the sepals.

Anther The part of a stamen containing the pollen.

Apocarpus With free carpels.

Arecaceae Alternate name for the family Palmae.

Arecoideae The palm subfamily which includes the tribe Cocoeae.

Bactridinae The palm subtribe which includes the rattan-like genus Desmoncus.

Basifixed Attached to the base.

Bejaudia A synonym of the rattan genus Myrialepis.

Bisexual Having both sexes present and functional in the same flower; cf.

hermaphrodite.

Bract A modified leaf associated with the inflorescence.

Bracteole A small bract borne (growing) on a flower stalk (stem).

Calameae The palm tribe that includes the rattan subtribes Calaminae, Korthalsiinae

and Plectocominae, as well as the non-rattan subtribes Metroxylinae,

Pigafettinae and Salaccinae.

Calaminae The rattan palm subtribe that includes the rattan genera Calamus, Calospatha,

Ceratolobus, Daemonorops, Pogonotium and Retispatha.

Calamoid Referring to palms in the genus Calamus.

Calamoideae The rattan palm subfamily that includes the rattan tribes Calameae and

Lepidocaryeae, as well as the non-rattan tribe Eugeissoneae.

Calamus A genus of rattans occurring in Southeast Asia, southern China, the western

Pacific, Australia, South Asia and equatorial Africa; it consists of 370-400

species.

Calospatha A genus of rattans occurring in Peninsular Malaysia; it consists of a single

species.

Calyx The outermost or lowermost whorl (circle) of floral organs, the sepals.

Campanulate Bell-shaped.

Carpel The single unit of the gynoecium.

Carpellate Pertaining to the carpel.

Chalaza The basal part of the ovule or seed where it is attached to the funiculus and

the point at which vascular (vessel) tissues enter and spread into the ovule.

Ceratolobus A genus of rattans occurring in Thailand, Peninsular Malaysia, Sumatra, Java

and Borneo; it consists of six species.

Ciliate Bearing a fringe of hairs.

Cocoeae The palm tribe that includes the subtribe Bactridinae.

Cornera A synonym of the rattan genus Calamus.

Corolla The second whorl (circle) of flower organs (parts), the petals, inside or above

the calyx.

Cucullate Bearing a flexible hood (covering) at the tip.

Cymbospatha A section of the rattan genus Daemonorops having the inflorescence with its

bracts all included within the prophyll; correctly this should be designated

as section Daemonorops; cf. Piptospatha.

Daemonorops A genus of rattans occurring in Southeast Asia and China; it consists of 115

species.

Desmoncus A genus_of rattan-like palms occurring in South America, Central America

and Mexico; it includes about seven species.

Diaspore Portion of the seed without sarcotesta.

Didymous Of anthers, where the connective is almost absent.

Embryo The rudimentary plant within a seed.

Endocarp The innermost layer of the fruit wall; cf. epicarp, mesocarp, pericarp.

Endosperm In palms, the nutritive body of a seed.

Epicarp The outermost layer of the fruit wall; cf. endocarp, mesocarp, pericarp.

Epipetalous United with and often appearing to be borne (growing) on the petals.

Eremospatha A genus of rattans occurring in humid tropical Africa; it consists of 11

species.

Exine The outer coat of a pollen grain.

Extrorse Of anthers, opening away from the centre of the flower.

Family A taxonomic (systematic) grouping of similar genera.

Filament The stalk (stem) supporting the anther in the stamen.

Fruit The ripened ovary with adnate (joined) parts.

Funiculus The stalk (stem) attaching the ovule to the ovary wall.

Gametophyte The pollen tube, its nuclei and the embryo sac.

Genus (plural: genera) A taxonomic (systematic) grouping of species believed to be closely

related to each other.

Gynoecium The ovule bearing organ of the flower, consisting of an ovary, a style and one

or several stigmas.

Hermaphrodite Bisexual; in flowers, with stamens and pistil in the same flower.

Hilum The scar left on the seed where it was attached.

Holotype The actual specimen on which the name of a species is based; cf. isotype,

syntype.

Homogeneous Referring to the endosperm; not ruminate.

Imbricate Overlapping such as in a flower bud when one sepal or petal is wholly

external and one wholly internal and the others overlap at the edges only; cf.

valvate.

Inflorescence The branch that bears the flowers, including all its bracts and branches.

Infructescence An inflorescence bearing fruit.

Integument The covering of the seed, divisible into two layers, the outer of which

becomes the sarcotesta.

Introrse Of anthers, opening toward the centre of the flower.

Involucrophorum A bract that holds both female and neuter flowers.

Isotype A duplicate of the holotype; cf. syntype.

Korthalsia A genus of rattans occurring in Southeast Asia; it consists of about 26

species.

Korthalsiinae The rattan palm subtribe containing the rattan genus Korthalsia.

Laccosperma A genus of rattans occurring in humid tropical Africa; it consists of six

species.

Latrorse Of anthers, opening lateral to the filament.

Lepidocaryeae The palm subtribe that includes the rattan genera Eremospatha, Laccosperma

and Oncocalamus.

Lepidocaryoideae A synonym of the rattan palm subfamily Calamoideae.

Locule The cavity in which the ovule is borne (growing).

Loricate Covered with fruit scales, as in the Calamoid palms.

Mesocarp The middle layer of the fruit wall; cf. endocarp, epicarp, pericarp.

Micropyle An opening through the envelope enclosing the ovule.

Myrialepis A genus of rattans occurring in Southeast Asia; it consists of a single

species

Oncocalamus A genus of rattans occurring in humid tropical Africa; it consists of four

species.

Ovary The part of the pistil, usually the enlarged base, which contains the ovules

and eventually becomes the fruit.

Ovate Egg-shaped; a flat surface that is scarcely twice as long as broad with the

widest portion below the middle.

Ovoid A solid object that is ovate in section.

Ovule The immature seeds in the ovary before fertilization.

Palmae The palm family; alternate name Arecaceae.

Partial inflorescence The first order branch of an inflorescence and the branches it carries.

Pedicel The stalk (stem) of an individual flower of an inflorescence.

Peduncular bracts Empty bracts borne (growing) on the peduncle (stem) between the prophyll

and the first rachis bracts,

Perianth A collective term for sepals and petals if both are present.

Pericarp The wall of the ripened ovary of fruit whose layers may be fused into one,

or may be more divisible into exocarp, mesocarp and endocarp.

Petal One unit of the inner floral envelope or corolla.

Phyllanthectus One of the sections into which the rattan genus Calamus is divided; the best

quality commercial cane species belong to this section and to Podocephalus,

q.v.

Piptospatha A section of the rattan genus Daemonorops sharing the characteristic of

having inflorescence bracts that split down their length and fall off at anthesis

(flowering).

Pistil The female part of a flower (gynoecium).

Pistillate Bearing a pistil (gynoecium), the ovule-bearing organ of the flower.

Pistillode A sterile gynoecium.

Plectocomia A genus of rattans occurring in Southeast Asia; it consists of about 16

species.

Plectocomiinae The rattan palm subtribe that includes the rattan genera Myrialepis,

Plectocomia and Plectocomiopsis.

Plectocomiopsis A genus of rattans occurring in Southeast Asia; it includes five species.

Podocephalus One of the sections into which the rattan genus Calamus is divided; the best

quality commercial cane species belong to this section and to Phyllanthectus,

q.v.

Pogonotium A genus of rattans occurring in Peninsular Malaysia and Borneo; it consists

of three species.

Pollen Spores (reproductive units) borne by (growing on) the anthers containing

the male element (gametophytes).

Pollination The transfer of pollen from the dehiscing (splitting) anther to the receptive

stigma.

Prophyll The first bract borne on the inflorescence.

Protandrous Stamens shedding pollen before the stigma is receptive.

Protogynous Stigmas receptive before pollen is shed.

Rachilla An ultimate flower-bearing branch of the inflorescence.

Rattan A climbing palm belonging to the subfamily Calamoideae.

Receptacle The central axis of a flower to which the floral organs are attached.

Retispatha A genus of rattans occurring in Borneo; it consists of a single species.

Ruminate Referring to the endosperm, darkly streaked due to infolding of the seed

coats.

Sarcotesta A fleshy layer developed from the outer seed coat; cf. testa.

Schizospatha A synonym of the rattan genus Calamus.

Section A taxonomic (systematic) grouping of species below the generic level; e.g.

Cymbospatha, q.v.

Seed The reproductive unit formed from a fertilized ovule.

Sepal A single part of the outermost whorl (circle) of floral organs (parts), the

calyx.

Sessile Without a stalk, such as a stigma with no style.

Spadix An inflorescence, which is now the preferred term.

Spathe A large sheathing bract usually either the prophyll or peduncular bract; a

term best not used.

Species The fundamental taxonomic (systematic) unit. In palms, the most commonly

applied species concept that is applied to palm taxonomy is the morphological species concept where discontinuities in morphological variation provide the

means to separate species.

Stamen The male organ of a flower; a filament (stem) bearing an anther containing

pollen.

Staminate A flower bearing stamens but no pistils.

Staminode An abortive or rudimentary stamen without a perfect anther.

Sterile Failing to complete fertilization and produce seed as a result of defective

pollenor ovules; not producing seed capable of germination; lacking

functional sexual organs.

Stigma The portion of the pistil that receives the pollen.

Style The part of the pistil connecting the ovary with the stigma.

Subfamily A major taxonomic (systematic) division of a family.

Subtribe A taxonomic (systematic) division of a tribe.

Syntype One of several different specimens cited in the first description of a species

where no single specimen was designated as the type.

Testa The outer coat of the seed; cf. sarcotesta.

Triad A special group of two lateral staminate and a central pistillate flower.

Tribe A taxonomic (systematic) division of a subfamily.

Triovulate A gynoecium with three ovules, one in the locule of each carpel.

Unisexual Referring to flowers of one sex; i.e. bearing fertile stamens alone or bearing

a fertile pistil alone.

Valvate Meeting exactly without overlapping; cf. imbricate.

Variety A taxonomic (systematic) division of a species.

ANATOMY AND MORPHOLOGY

Abaxial The side of an organ that faces away from the axis that bears it; e.g. the under

surface of a leaf; cf. adaxial.

Abscission Separation; e.g. detachment of a leaf from a stem.

Acanthophyll A spine, often large, derived from a leaflet.

Acaulescent Lacking a visible stem; stemless.

Acuminate Tapering to a point with concave sides; cf. acute.

Acute Sharp; ending in a point with straight or slightly convex sides; cf.

acuminate.

Adaxial The side of an organ that faces toward the axis the bears it; e.g. the upper side

of a leaf; cf. abaxial.

Adventitious Not in the usual place; e.g. roots on stems.

Ansa The stalk of a leaflet (in Korthalsia only).

Ansate Bearing an ansa.

Apex The growing point of a stem or root.

Apical At the point of any structure.

Apiculate Bearing a short, sharp but not stiff point.

Armed Bearing some form of spines.

Auricle An ear-like extension of the leaf sheath, usually paired, one on each side of

the petiole.

Axil The upper angle between the leaf and the stem.

Axillary Borne (growing) in an axil.

Axis The main or central line of development of a plant or organ.

Bifid Divided in two, usually equal, parts.

Blade The extended part of a leaf or petal.

Bristle A stiff hair.

Caespitose Clustered, having multiple stems; cf. solitary.

Central cylinder or corpus Inner to the stem cortex; comprised of scattered vascular bundles

embedded in thin-walled parenchymatous ground tissue.

Cirrate Bearing a cirrus, q.v.

Cirrus An extension of the rattan leaf tip armed with grapnel hooks, enabling the

rattan to climb into the forest canopy; cf. flagellum.

Clustered Caespitose; having multiple stems; cf. solitary.

Concolorous Upper leaflet surface the same colour as the lower; cf. discolorous.

Connate United or joined.

Connective The part of the stamen that connects the anther cells to the filament.

Coriaceous Leathery.

Cortex The ground tissue of the stem between the vascular cylinder and the

epidermis.

Cotyledon Single seed leaf in palms, part of the embryo.

Crown The cluster of leaves borne at the tip of the stem.

Culm A rattan stem or stalk; the term is also applied to the bamboo stem.

Dimorphic Of two forms, as may occur with branches, etc.

Discolorous Upper leaflet surface different in colour from the lower; cf. concolorous.

Distal Situated farthest from the point of attachment.

Distichous Regularly arranged in two opposite rows on either side of a stem.

Dyad A pair.

Ecirrate Without a cirrus, q.v.

Eflagellate Without a flagellum, q.v.

Entire An even margin without tooth-like or lobed (rounded) edges.

Eophyll In a seedling, the first leaf having a blade.

Epidermis The outermost layer of the rattan stem (the skin) consisting of a single row

of mostly radially elongated cells.

Fibre A relatively long sclerenchyma cell.

Fibre sheath In the stem, the heavily lignified and thick-walled fibres mainly surrounding

the vascular bundles.

Flagellate Bearing a flagellum, q.v.

Flagellum A whiplike climbing organ derived from an inflorescence and bearing

reflexed spines; cf. cirrus.

Grapnel A small anchor or hook with three or more flukes (barbed heads) used for

the spine groups borne (growing) on the flagellum or cirrus.

Ground tissue Parenchyma cells between the vascular bundles of the rattan stem.

Hypodermis One or two layers of unlignified cells lying just below the epidermis of a

rattan stem.

Indument Any covering as hairs or scales.

Induplicate Leaflets V-shaped in cross section; cf. reduplicate.

Internode The space or part of a stem or branch between the attachments of two leaves;

also referred to as a joint.

Joint Common name for an internode.

Knee A swelling on the leaf sheath at the base of the petiole, present in most

rattans.

Lamina The usually flattened bladelike portion of a leaf, as distinct from the leaf base

and petiole.

Lanceolate Narrow, tapering at both ends, the basal end often broader.

Leaflet One part of a compound (having 2 or more leaflets) leaf.

Linear Several times longer than wide, usually narrow.

Meristem The apical growing point of the stem which is an area of active cell division.

Metaxylem vessels In the stem, elongated cells forming the main part of the xylem; they

transport water and appear round in cross-section.

Midrib The main vein of a leaf which is a continuation of the petiole.

Nerve A strand of strengthening and/or conducting tissue running through a leaf,

which starts from the midrib and diverges or branches throughout the leaf.

Node The point on the stem or branch at which a leaf or lateral is borne

(growing).

Ocrea An extension of the leaf sheath beyond the petiole insertion.

Paraxylem In the stem, small vessels located in the para-position (alongside) of the

xylem.

Parenchyma Storage tissue in the rattan stem.

Peduncle The lower unbranched part of an inflorescence.

Pendulous Drooping; hanging down.

Periphery The portion of the rattan stem consisting of the epidermis and a peripheral

zone below.

Petiolate Having a petiole, q.v.

Petiole The stalk (stem) of a leaf.

Phloem The cell system for transporting sugars and nutrients through the rattan

stem; cf. vascular bundles.

Pinna (plural: pinnae) Leaflet of a pinnate leaf.

Pinnate Featherlike, lateral ribs or leaflets arising from a central axis.

Praemorse Jaggedly toothed; referring to the jagged leaflet margins of Korthalsia,

Eremospatha spp. and some species of Ceratolobus.

Rachis The axis of a leaf beyond the petiole; or the axis of an inflorescence beyond

the peduncle.

Radicle The first root formed by the embryo.

Recurved Bent or curved downward or backward.

Reduplicate Leaflets A-shaped in cross-section; cf. induplicate.

Rhizome An underground stem that is distinguished from the adjoining roots by the

presence of nodes with buds and leaves or scales.

Rhomboid Diamond-shaped; term used to describe leaflets.

Scandant Climbing.

Sclerenchyma In the stem, heavily lignified cells with thick walls that ensheath the vascular

bundles, q.v.

Sheath Basal part of the leaf that is usually tubular, but often splits.

Shoot A young growing stem.

Silica In the stem, silicon dioxide (SiO₂) occurs as isolated spherical bodies in

unequally thickened cells (stegmata), characteristically disposed next to

vascular and non-vascular fibre.

Solitary

Single stemmed, not clustering, q.v.

Spine

A short stiff straight sharp-pointed hard structure; armed, q.v.

Spinule

A very small spine.

Stegmata

Silica cells (bodies) present in the rattan stem as longitudinal files of cells

adjacent to vascular or non-vascular fibre.

Stem

The part of the plant that is usually above ground and bears the branches,

leaves and reproductive parts.

Stemless

Referring to rattans with very short, often subterranean stems; cf.

acaulescent.

Stolon

A trailing stem usually above ground capable of producing roots and shoots

at its nodes.

Stomata

Pores in the epidermis of aerial parts of the rattan plant,

Subcirrate

A type of leaf in which the terminal portion of the rachis bears very small

widely separated leaflets, but does not develop into a true cirrus.

Sucker

A branch formed at the base of a rattan stem.

Sympodial

Of a stem in which the growing point either terminates in an inflorescence

or dies, growth being continued by a subtending lateral growing point.

Terrete

Smooth, cylindrical and tapering.

Tomentum

A thick covering of hairs.

Unarmed

Without any spines.

Vascular bundles

Strands of phloem and xylem cells embedded in parenchymatous cells and

sheathed by sclerenchyma cells.

Vein

A strand of vascular tissue in a flat organ such as a leaf.

Venation

The arrangement of the veins of a leaf.

Verrucate

Bearing broad, rather large, isodiametric excrescences (growths).

Verticillate

Arranged in whorls (circles) as in the spines on the stems of some Calamus

species.

Whip

A climbing organ in some rattans; general term for cirrus and flagellum.

Xylem

The cell system transporting water through the rattan stem; cf. vascular

bundles.

Yellow cap

Strands of non-lignified fibres, normally yellow in colour and not taking

up stain, surrounded with large numbers of stegmata, found in species of

Korthalsia, Plectocomia and Plectocomiopsis.

PHYSIOLOGY

Adjacent-ligular

Type of germination in which the seedling shoot develops close to the seed.

Anthesis

The time when pollination takes place.

Apogeotropic

Growing upwards; cf. geotropic.

Dioecious When female (staminate) and male (pistillate) flowers are borne (growing) on

different plants; cf. monoecious.

Geotropic Growing downward; cf. apogeotropic.

Gibberellic acid A growth-promoting hormone which has shown positive effects on rattan

seedlings.

Hapaxanthic Describing shoots flowering then dying; cf. pleonanthic.

Hypostomatous Stomata confined to the abaxial surface of the leaf.

Lignified Impregnated with lignin, the major chemical constituent of wood; i.e.

woody.

Monocarpic Bearing fruit only once in its lifetime; cf. polycarpic.

Monoecious When female (staminate) and male (pistallate) flowers are borne (grow) on

the same plant; cf. dioecious.

Phenology The study of the behaviour of plants in relation to environmental conditions.

The major objective of phenological studies of rattans is to determine

flowering and fruiting patterns.

Phyllotaxy The arrangement of leaves on a stem.

Pleonanthic Describing shoots flowering continuously, not dying after flowering; cf.

hapaxanthic.

Polycarpic Flowering over many years; cf. monocarpic.

RLI Relative Light Intensity, a standard measure of light intensity expressed as

1-100%. RLI is used to study rattan seed germination and growth in natural

forests and nurseries.

Root to shoot ratio A measure of the differential sensitivity of roots and shoots to water stress.

Rattan root growth is less sensitive than shoot growth hence there are large

increases in the ratio under conditions of water stress.

MANAGEMENT AND PLANTATIONS

Agroforestry A land-use system based on some combination of cultivated annual and

perennial plants, natural forest and livestock, such that total production per

unit area is maximized and risk minimized.

Assisted natural regeneration A term used interchangeably with enrichment planting.

Belukar (Malay) Young secondary forest.

Bungor A support tree (Lagerstroemia speciosa) planted for cultivation of small-

diameter canes in Kalimantan.

Cluster sampling A technique that can be used to inventory rattans in virgin or secondary

forest; a grid of the area to be surveyed is constructed and randomly selected clusters assessed in the field for the quantity and size-class of rattan species

present.

Enrichment planting Cultivation of a desirable rattan species within its native forest habitat

to increase populations, using nursery stock or wildings; examples are group

planting, line planting and strip planting.

Establishment stage The initial growth period of a seedling derived from direct seeding or

transplanting; critical factors are light, moisture and nutrients.

Forest plantations Cultivation of different tree species underplanted with rattan.

Group planting Rattan seedlings of large-diameter species planted with multiple seedlings

per planting point, typically at least 1 m apart; some tree thinning is done to

improve light conditions for seedling growth.

Hardening off Removal of rattan seedlings from the nursery into direct sunlight a few days

or a week before transplanting.

Intercropping Cultivation of two or more perennial or annual species in rows or other

complementary patterns such that production is maximized per unit area.

Kampong (Malay) A cluster of houses and associated gardens; a compound.

Ladang (Malay) Cultivated field; sometimes the site of rattan gardens.

Line planting Rattan seedlings of large-diameter species planted singly per planting point

along a planting line within a forest; some tree thinning is done to improve light conditions for seedling growth. Line planting is especially suitable in

belukar or regenerating forest.

Lining The marking of planting rows and planting points prior to transplanting

rattan seedlings.

Plantation owner/operator This term includes private tree plantation companies, village farmers

and individuals under contract for reforestation programs.

Planting materials Seeds, wildings, suckers or tissue cultured material for rattan propagation.

Polybag nursery Germination of rattan seed in polythene bags filled with fertile topsoil.

Processed seed Rattan seed from which the fruit scales (pericarp) and the fleshy sarcotesta

are removed before sowing.

Pruning Maintenance of young rattan plants by cutting of dried rattan leaves to

allow better passage of workers and peeling off dried brittle leaf sheaths to

discourage breeding of long horn beetles.

Raised seed bed A bed for germinating seed which is elevated 10–13 cm above the ground and

surrounded by boards to maintain the height.

Ramet A sprout from a clustering rattan that may be separated and used for

propagation.

Rattan garden A shifting cultivation plot converted into growing rattans once food

production has ceased and secondary succession is taking place.

Rattan stock An inventory of the rattan populations in a given forest area, commonly to

determine the density of commercial species by diameter classes.

Replacement or supply planting The replacement of dead or unhealthy rattan seedlings.

Rosette stage Said of rattan seedlings when the seedling leaves are fully expanded, at which

time they may be transplanted.

Selective felling and cutting Removal of forest canopy in an area of enrichment planting to allow

sufficient light to reach transplanted rattan seedlings.

Shade/Support trees Naturally-occurring or cultivated trees providing support and shade for

cultivated rattans.

Shifting cultivation or swidden agriculture A traditional food cropping system on forest lands;

rattan planting of small-diameter species has been incorporated into the

system in Borneo.

Stem training Assisting the first (or mother) rattan stem to gain tree support as early as

possible.

Strips of forest are cleared and an optimum of two planting lines of rattan

seedlings established per strip; strip planting is recommended in old

secondary forest.

Strip sampling A technique that can be used to inventory rattans in virgin or secondary

forest; predetermined strips, 10 m or more in width and a sampling intensity

of 20-25 percent can provide an adequate measure of rattan stock.

Sunscorch Scorching of rattan seedling leaves because of excessive sunlight; it can result

in seedling death.

Swidden Shifting cultivation, q.v.

Thinning In multiple-stemmed rattan species, reduction of the number of stems within

the clump to allow remaining stems to grow more vigorously.

Transplanting Removal of wildings or nursery seedlings from their original location to a

planting site in the forest.

Underbrushing Slashing of all undergrowth as close to the ground as possible to prepare for

enrichment planting or group planting of rattan seedlings.

Underplanting Planting any desirable economic species such as rattan beneath the forest

canopy.

Vegetative propagation Propagation of rattan by suckers, whole rhizomes and by tissue

culture.

Wilding a self-sown seedling collected from the wild for planting.

HARVESTING

Bundling Gathering and tying cut lengths of canes into bundles for transport to a

collection point. About 10 large-diameter canes make up a bundle; small-diameter canes are doubled over and bundled, the number of pieces being determined by the cane diameter. A typical bundle of canes weighs about 60

kg.

Coiling Forming slender canes into coils for transport from the forest, rather than

cutting them into lengths.

Collecting permit Legal authorization issued to individuals, cooperatives or companies to

harvest wild rattans in a defined area for a specified period of time; cf.

royalty.

Collectors Local people, often forest-dwellers, who harvest wild canes.

Cross-cutting Cutting harvested canes into desired lengths; large-diameter canes are usually

cut into 3 m lengths; small-diameter canes into 9 m lengths.

Cutting cycle The interval between harvests of wild or cultivated canes to allow them to

regenerate naturally; a 5-12 year cycle is suggested, varying in accordance

with species.

Dragging cf. pulling.

Felling Severing the rattan cane near the base with a parang.

Freeing If a cut rattan stem cannot be pulled free manually from the ground, it is

necessary to cut branches or trees from the canopy to release the cane.

Fungicide application In the Philippines, rattan harvesters carry fungicide in a plastic container

and dip the ends of rattans in the solution immediately after they are cut into

lengths; this is a desirable practice and should be done if possible.

Hauling Transport of bundles of canes from the cutting site to a collection point.

Lopping Cutting away the soft useless uppermost 2–3 m of the rattan stem.

Mature stems Distinguished from immature ones by the following criteria:

(a) exposed stem or leaf-sheath brownish, dry and brittle,

(b) spines blackish,

(c) leaves dry or yellowish green,

(d) stem with leaf-sheath bright yellow in colour,

(e) average stem length above 24 m (not applicable to all species).

Orang Asli (Malay) Aboriginal people of Malaysia who traditionally engage in rattan

harvesting.

Parang (Malay) A broad slightly curved knife, sharpened on the incurved portion, used to

cut rattans off at the base; also known as a machete.

Picul A Malaysian unit of measure equal to 60 kg; it is a common weight

designation for a bundle of small-diameter canes ready for transport from

the forest.

Pole a general term applied to cut lengths of rattan canes.

Pulling or dragging The practice of dislodging a whole cut rattan cane from the forest canopy by

manually tugging on the severed end; some mechanical means of pulling have,

been employed.

Royalty A payment made to the landowner, in the case of rattan most commonly the

government, for the right to harvest canes; the royalty amount is determined

by the cane type and quantity harvested; cf. collecting permit.

Selective felling In India, rules adopted for the extraction of canes:

(a) only mature canes should be removed from a clump, leaving undisturbed

and undamaged the immature or tender canes,

(b) digging of rhizomes or roots is prohibited,

(c) canes shall not be extracted from outside the specified harvest blocks,

(d) all one-year-old culms and six culms of the second year shall be left in a

clump,

(e) clumps consisting of less than six culms will not be harvested,

(f) felling should be done as near the base as possible.

Sorting The selection in the field of rattans acceptable in the trade, often done when

cutting lengths and prior to bundling.

Trifore and lier A mechanical process for pulling rattans, consisting of the trifore, which is

a unit consisting of a pulley and tackle and the lier or winch, consisting of a drum where the rattan is pulled and coiled. The process is probably suitable

only for small-diameter canes.

RATTAN AS A RAW MATERIAL

GRADING, CLASSIFICATION AND GENERAL TERMS

Bend A cane defect; a deviation from straightness as measured by the chord that

the curvature makes between the extreme edges of deviation and by the

depth at the middle portion.

Bending tolerance Refers to the smallest circle that can be made with a rattan cane without any

splitting or cracking.

Bleached rattan Canes lightened in colour by chemical agents to improve surface

brightness.

Blemish A cane defect; any feature marring the surface appearance of a cane; e.g.

fungal blemishes. Whether a particular feature is classed as a blemish depends

upon the relevant grading rule and on the end-use of the cane.

Bondot Term used in Indonesia for unpeeled small-diameter canes applied to rattan

furniture frames.

Break A cane defect; a separation of fibres extending through a cane from one

surface to the other, usually perpendicular to the direction of the grain.

Bruise A cane defect; an injury on the cane surface caused by harvesting operations

or improper processing.

Cane Any piece or stem of round rattan, of any diameter; the term may also be

used to refer to pieces of bamboo.

Cane webbing Chair cane that has been machine-woven into a coarse fabric that is used for

chair seats and backs.

Chair cane Finely split rattan used to weave chair backs, seats etc.

Check A cane defect; a longitudinal fissure indicating separation of fibres along

the cane length, but not extending through the piece from one surface to

another.

China peel Term used in Indonesia for rattan peel or skin.

Core The central part of the rattan cane after the removal of skin, usually marketed

as strips of uniform diameter, often called "wicker".

Cured rattan or canes Geen rattan that has undergone boiling, washing and scrubbing; also

called partially processed cane.

Defect An abnormality or irregularity in cane which lowers its technical quality or

commercial value by decreasing strength or adversely affecting its appearance

and use; cf. permissible defects; prohibited defects.

Density Relationship of weight of rattan over volume at a given moisture content,

expressed in g/cm³ or kg/m³.

Diameter class a method of classification of rattan canes; in grading, diameter is measured in

the mid-internode of the small end; cf. large-diameter rattans, small-diameter

rattans, split rattan canes.

Dimensional specifications for split rattan Grading based upon: (a) length, q.v. (b) diameter

class, q.v. (c) width, q.v. (d) thickness, q.v.

Dimensional specifications for unsplit large-diameter canes Grading based upon: (a) length, q.v. (b) diameter class, q.v. (c) taper, q.v. (d) internodal length, q.v.

Dimensional specifications for unsplit small-diameter canes Grading based upon: (a) length, q.v. (b) diameter class, q.v. (c) taper, q.v. (d) internodal length, q.v.

End-use class

Categories of end-uses recognized for assessing utilization potential of a particular grade: (a) furniture frames, (b) furniture seats/backs, (c) walking sticks, umbrella handles, sporting goods, etc.; (d) handicrafts/novelty items; (e) baskets.

Flat core

Material derived from split cores or canes with flat surfaces on both sides; also referred to as ropes and binds; cf. flat oval core, hollow oval core.

Flat oval core

Material derived from split cores or canes 2–10 mm in width, with one concave and one flat surface. This material is normally used for weaving and binding; cf. flat core, hollow oval core.

Fumigated rattan

Canes which have been exposed to sulphur dioxide fumes to improve their surface appearance and kill any organisms in the cane.

General requirements of entire (unsplit) large-diameter processed canes

- (a) Canes shall have authentic identity when the species is specified by the buyer.
- (b) Canes shall be straight, round, mature and seasoned.
- (c) Canes shall not break or develop checks and other defects in bending or any other processing stage.
- (d) Canes shall be either oil-cured or chemically treated with anti-staining fungicide, bleached or fumigated as specified by the buyer.
- (e) Plugging of covering of visible defects is not permitted in any form.

General requirements of entire (unsplit) small-diameter processed canes

- (a) Canes shall have authentic botanical identity when specified by the buyer.
- (b) Canes shall be mature and seasoned.
- (c) Canes shall not break on bending or in any other processing stage.
- (d) Canes shall be either oil-cured or chemically treated with anti-staining fungicide, bleached or fumigated as specified by the buyer.
- (e) plugging or covering of visible defects is not permitted in any form.

General requirements of split rattans (cane derivatives)

- (a) Cane derivatives shall be obtained from mature and seasoned canes and be pliable.
- (b) Split rattan shall be derived from canes which are either oil-cured, furnigated, bleached or chemically treated with anti-staining fungicides as specified by the buyer.
- (c) Plugging or covering of visible defects is not permitted in any form. The surface shall be smooth.
- (d) Diameter of round cores or width of flat and oval cores and peels shall be uniform throughout the length.

Grading of large-diameter processed canes

Four standardized grades are proposed by Bhat (1996):

Grade	Specifications		
Super	Entirely (100% of specified length), free from defects.		
quality	Ivory- white, cream or yellowish in colour.		
	Uniformly bright or lustrous surfaces.		
	Internodal length >100 mm.		
Γ	Extent of permissible defects not exceeding 15% of the specified		
	length.		
	Ivory-white, cream or yellowish in colour.		
	Uniformly bright surfaces.		
	Internodal length >100 mm.		
II	Extent of permissible defects not exceeding 50% of the specified		
	length.		
	Ivory-white, cream or brownish in colour.		
	Internodal length >100 mm.		
III	Extent of permissible defects not exceeding 75% of the specified		
	length.		
	Whitish, yellowish, brown or dark brown in colour.		
	Internodal length >50 mm.		

Grading of rattan cores

Three standardized grades are proposed by Bhat (1996):

Grade	Specifications	
I	Whitish in colour.	
	Hard and not easily broken.	
	No or few defects.	
II	White to yellowish in colour.	
	Hard.	
	Less than 15% of surfaces defective.	
III	Brownish to reddish in colour.	
	Soft.	
	More than 15% of surfaces defective.	

Grading of ropes and binds

Three standardized grades are proposed by Bhat (1996):

Grade	Specifications
Ï	Yellowish white in colour.
	Hard and pliable.
	No or few defective surfaces.
II	Creamy in colour.
	Intermediate hardness.
	Less than 25% of surfaces defective.
III	Brownish in colour.
	Soft and easily broken.
	More than 25% of surfaces defective.

Grading of small-diameter processed canes

Four standardized grades are proposed by Bhat (1996):

Grade	Specifications			
Super	Entirely, 100% of standard length.			
quality	Free from defects,			
	Ivory- white, cream or yellowish in colour.			
	Uniformly bright or lustrous.			
	Easily pliable.			
	Internodal length >100 mm.			
I	Extent of permissible defects not exceeding 15% of the specified			
	length.			
	Ivory-white, cream or yellowish in colour.			
	Easily pliable.			
	Internodal length >100 mm.			
II	Extent of permissible defects not exceeding 50% of the specified			
	length.			
	Ivory-white, cream or brownish in colour.			
	Internodal length >100 mm.			
III	Extent of permissible defects not exceeding 50% of the specified			
	length.			
	Whitish, yellowish, brown or dark brown in colour.			
200 70- 00	Internodal length >50 mm.			

Grading of split rattans

Two standardized grades are proposed by Bhat (1996):

Grade	Criteria	
I	Free from defects and whitish in colour.	
II	Extent of permissible defects (q.v.).	
	Not to exceed 15% of standard length (q.v.).	
	White, yellowish or brown in colour.	

Green rattans or canes Raw, freshly cut rattans which have not undergone any treatment.

Hagkal peel

Term used in Philippines for rattan peel or skin.

Hardness

In grading raw canes, three categories are recognized:

- (a) hard rattan: when bent by hand and released, it springs back and regains its original form quickly:
- (b) moderately hard rattan: when bent by hand and released, regains its original form rather slowly and not fully:
- (c) soft rattan: when bent, it cracks at the end or breaks, and if the bent rattan is released before it cracks or breaks, it regains its original form completely.

Hole

A cane defect; a cavity caused by worms, insects or mechanical means.

Hollow oval core

Material derived from split cores or canes with both surfaces curved in parallel; i.e. concave and convex; cf. flat core, flat oval core.

Internodal length

In cane grading, a measure of the shortest distance from one node to another expressed in mm. The minimum length is 50 mm for grading large- and small-diameter canes.

Large-diameter rattans A class of unsplit canes 18-40> mm in diameter; cf. small-diameter

rattans. In trade the following large-diameter classes may be used: > 40 mm,

35-40 mm, 30-35 mm, 25-30 mm, 20-25 mm and 18-20 mm.

Length In grading, the shortest distance in meters from one extreme end of a cane

(large or small diameter and split rattans) to the other, usually rounded off

to the nearest lower 0.05 m. Length is specified by the buyer.

Loonty Term used in Indonesia for small-diameter canes used to weave rattan mats;

cf. lampit, tatami.

Lustrous cane Canes in which the surface is bright and exhibits a sheen or glossiness.

Mature cane The part of a stem which has attained full structural development and does

not show any deformation or fracture during drying and bending.

MOE Modules of elasticity; a mechanical test of rattan cane strength.

MOR Modules of rupture; a mechanical test of rattan cane strength; cf. strength

class.

Natural cane Green or cured rattan in natural form; i.e. with skin.

Oil-cured rattan Green canes that have been cured in hot oil to impart desired surface colour

and appearance, and to prevent biological degradation.

Palembang Term used in Philippines for unpeeled small-diameter canes applied to rattan

furniture frames.

Partially processed cane Cured rattan, q.v.

Peel Rattan peel, q.v.

Peeled cane Rattan canes in which the skin has been removed.

Permissible defects In cane grading, defects such as blemishes, scars, pin holes, checks and bruises

are permissible to the extent specified for a particular grade; cf. grading rules for large-diameter canes, grading rules for small-diameter canes, grading

rules for split rattan (cane derivatives).

Pole General term for a length of rattan; the term may also be used to refer to a

piece of bamboo.

Polished cane Peeled cane which has undergone polishing (sanding).

Prohibited defects In cane grading, defects such as decay, pin and worm holes, breakage and

shakes.

Rattan From rotan (Malay), reed, cane or stick.

Rattan derivatives Products or parts of cane resulting from rattan conversion; i.e. splitting and

peeling; cf. split rattan.

Rattan peel Flat or semicircular material 2–10 mm in width obtained from the peripheral

portion of the cane including the skin, normally used for weaving and

binding; cf. flat oval core. Also called "rattan skin".

Rattan pole Round rattan, green or treated, of any convenient length.

Rattan waste Remnants of rattan, either in strips, splinters or slivers resulting from

processing; or in cylindrical shape with less than 50 mm in length.

Rattan wool Fine waste produced from splitting and coring; unsuitable for any use except

as stuffing or packing material.

Raw cane Freshly cut rattans that have not undergone any treatment; also called green

rattan.

Reed Synonym for (rattan) core, q.v.

Ropes and binds Material derived from splitting rattans, which has been sized and thinned;

used for weaving and binding purposes.

Rough cores A by-product of split rattans, which has undergone further splitting.

Round core Round material consisting of the cores of rattan stems, 2–10 mm in diameter,

obtained by peeling and splitting, normally used for basket frames.

Round rods Scraped poles, q.v.

Scar A cane defect; a depression or any marking on the surface other than fungal

discoloration.

Scraped poles Canes from which the rattan skin has been removed either by scraping or by

a round-rod making machine.

Seasoned rattan Canes whose moisture content has been reduced to a maximum level under

more or less controlled drying processes.

Shake A cane defect; a partial or complete separation between adjoining layers of

tissues, as seen in end surfaces, caused by stresses developed in cutting and

collecting, or in unequal drying of immature stems.

Small-diameter rattans A class of unsplit canes below 18 mm in diameter; cf.large-diameter

canes. In trade the following small-diameter classes may be used: 2-6 mm;

>6-11 mm and >11-17 mm.

Split rattan By-products of the splitting process, such as ropes, binds and cores; cf.

rattan derivatives. In grading, the diameter of round cores is 2-10 mm with

a tolerance of 0.5 mm.

Square core Rattan split with a square end shape.

Sticks Term referring to larger-diameter rattans collected and sold as straight

lengths in Indonesia.

Strand cane Synonym for chair cane, q.v.

Strength class A classification of unsplit rattan canes into three classes:

(a) strong to very strong: static bending MOR and/or tensile strength

UTS above 70 N/mm²;

(b) moderately strong: MOR or UTS 45-70 N/mm²;

(c) weak: MOR or UTS below 45 N/mm².

Taper In cane grading, a measure determined by the difference between diameters

measured at the two extreme ends of a cane. In large-diameter canes, the maximum taper should not exceed 5 mm for a length of 3.5 m; in small-diameter canes, the maximum taper should not exceed 3 mm for a length of

4.5 m.

Tensile strength The greatest longitudinal stress a rattan cane can bear without tearing apart,

expressed as N/mm². Tensile strength decreases when strong bleaching

agents are used and long bleaching periods are applied.

Thickness In grading split rattans, thickness of flat or oval cores is 1–6 mm.

Treated rattan Canes that have been treated with chemicals to prevent biological

degradation.

Unsplit rattan or canes Round canes, scarped or unscraped, that have not been peeled or split.

Utility class A simplified method to classify cut canes on the basis of stem diameter

groups when information as to the species of the canes is unknown.

UTS Ultimate tensile stress, a mechanical test of rattan cane strength; strength

class, q.v.

Water sega Term used in Indonesia for small-diameter canes to weave rattan mats; of

lesser quality than loonty, q.v.

Width In grading split rattan canes, the width of flat or oval core and peels is

2-10 mm; flat/oval core, q.v.

Zambales peel Term used in Philippines for rattan peel or skin.

POST-HARVEST HANDLING

Artificial drying The use of a closed, heated chamber to reduce the moisture content of

deglazed and washed canes. Artificial drying has been successful but is not

often used.

Bleaching Immersion of canes in a chemical solution to remove or reduce blemishes;

sodium hypochlorite (1 percent solution for about 1 hour) or hydrogen

peroxide are used.

Cooking General term for boiling raw canes in hot oil; curing q.v.

Curing Immersion of canes in a hot oil mixture (diesel, kerosine or coconut oil at

100–250 °C for 10 minutes or more) to prevent deterioration. This should be done within 1–2 days of harvesting and is said to make the canes durable by

removing gums, resins and water, and denaturation of starch.

Deglazing The first step following harvesting consisting of the removal of the spiny leaf

sheaths adhering to the stem and the silicified epidermis. Various procedures are employed: wrapping the rattan around a tree trunk and rubbing it back and forth; rubbing the stem with sand or some other abrasive material;

striking the cane with a piece of plaited wood; or cutting with a parang.

Drying Reduction of the water content of cured and scrubbed canes. Typically canes

are dried in the sun; placed upright against wooden frames or bundled and loosely tied at one end and stood upright with the untied basal ends spread out to form a cone. Drying time can vary from 1-3 weeks, depending upon

the cane diameter and weather conditions.

End-racking Open-air drying of oil cured and cleaned rattans by leaning them on wooden

frames.

Fumigation Exposing dried canes to sulphur dioxide to kill insects and their larvae and to

give a greater uniformity of colour; usually only good quality large-diameter

canes undergo the process.

Layang (Malay) Term in Peninsular Malaysia for curing of Calamus manan. The raw rattans

are soaked for some time in diesel oil, then bundled and heated slowly over a fire during which the surfaces are rubbed with coconut or diesel oil to remove any gummy materials. The process also reduces the content of the canes. Layang achieves a very even colour and glossy texture, enhancing the

quality of the cane.

Oil-curing Term used as a synonym for curing, q.v.

Primary processing A collective term that generally includes curing, scrubbing, drying, and fumigating (if applicable) of canes.

Runti or lunti (Malay) Deglazing, q.v.

Scraping Removal of the nodes and rinds of fresh canes along with the siliceous

epidermis to hasten drying and to minimize staining fungal growth; scraping can be done manually with a knife or sharp-edged tool or mechanically.

Scrubbing or rinsing Cleaning cured canes using sawdust or gunny sacking to remove oil from

the surface.

Sorting After primary processing canes may be sorted by diameter and other criteria

and bundled again for storage.

STORAGE

Godown (Malay) A warehouse; the term is used in reference to rattan storage.

Underwater storage Submergence of small-diameter canes in water before undergoing primary

processing; the anaerobic conditions prevent deterioration and attack by

organisms.

Warehousing After primary processing, bundled canes are stored horizontally on racks

and kept in a covered warehouse until sold.

TRADE

Ayer (Malay) One of four main groups of cane in trade, according to Burkill (1966); this

group includes non-siliceous canes not included elsewhere; cf. lunti, sega,

sticks.

Bet (Hindi) A general term used in India to refer to rattan of any type; the name probably

originated from the Sanskrit word betas, meaning climber.

Demere (Twi) Trade name for Calamus deërratus canes in Ghana.

Lunti (Malay) One of four main groups of cane in trade, according to Burkill (1966); this

group includes the same kinds as sega (q.v.) except that the silica layer has

been removed; cf. aver, sticks.

Makak Trade name for Laccosperma secundiflorum & L. robustum canes in West

Africa.

Palasan (Tagalog) Philippine trade name group that includes true palasan (Calamus merrillii)

and other canes with a diameter over 2.5 cm and internodes of 25 cm or

more; cf. panlis, sika and tumalin.

Panlis (Tagalog) Philippine trade name group for canes with a diameter of less than 1.5 cm,

but which are rather light in colour and therefore not included in the sika

group, q.v.; cf. palasan and tumalin.

Rotan manau (Malay) Trade name for Calamus manan canes in Southeast Asia.

Rotan merah (Malay) Trade name for Korthalsia spp. canes in Southeast Asia.

Rotan sega (Malay) Trade name for Calamus caesius canes in Southeast Asia.

Rotan semambu (Malay) Trade name for Calamus scipionum canes in Southeast Asia.

Samarinda East Kalimantan river port important in the rattan trade.

Sega (Malay) One of four main groups of cane in trade, according to Burkill (1966); this

group includes all canes with a siliceous outer layer that cracks and springs

off when the cane is bent; cf. ayer, lunti, sticks.

Sika (Tagalog) Philippine trade name group that includes Palawan sika (Calamus caesius)

and other rattan species that are glossy, flexible, bright yellow when dry and

less than 1.5 cm in diameter; cf. palasan, panlis and tumalin.

Sticks One of four main groups of cane in trade, according to Burkill (1966); this

group includes canes which are straight and stiff and suitable for walking

sticks and furniture frames; cf. ayer, lunti, sega.

Tumalin or tumalim (Tagalog) Philippine trade name group that includes true tumalin (Calamus

mindorensis) and other rattan species with a diameter of 1.5-2.5 cm; cf.

palasan, panlis and sika.

TRANSPORT

Animal power The use of buffalo, horses or elephants to carry (or drag) bundles of rattan

from the cutting sites to a forest road collection point or waterway.

Carrying Manual carrying of bundles of rattan from the forest along footpaths to

a collection point; some dragging of the canes may occur when going

downhill.

Dragging or sliding Moving bundles of rattan along the ground from the forest to a collection

point; the practice causes some damage to the canes that come in contact

with the ground.

Rafting Tying together bundles of rattan to form a raft, which is then towed by a

boat to a collection point on land; the rattans are dried immediately after

being taken out of the water.

Trucking Trucks are a common means in Malaysia of transporting rattans from the

collection point on a forest road to the sales site or factory,

PROCESSING

FOR LOCAL ARTISANAL USES

Blow torch bending Application of heat to rattan canes to permit bending them in moulds into

various shapes for making furniture and other artisanal products; this method of bending causes scorching; steam bending is preferable but not feasible for

the typical backyard operation.

Dyeing Colouring split canes used in making baskets, mats, etc.

Plaiting Interweaving strands of rattan peel or split rattan at approximately right

angles.

Smoking A finishing process typically used for artisanal baskets, containers and other

products woven from split canes. The object is held over a pot containing a slow smoky fire and produces an intensification of colour in dyed canes; the

term also is used to refer to fumigation, q.v.

Splitting Dividing lengthwise rattan canes to produce split rattan and cores; in

artisanal work this process typically is done manually with a knife.

Weaving The intertwining of rattan canes or split rattan in a variety of different

directions and patterns to make baskets, mats and an assortment of other

hand-woven products.

INDUSTRIAL LEVEL FURNITURE MANUFACTURING

Assembly Joining together the different components of a piece of furniture, using

nails, screws, staple, adhesives or strips of rattan (binding); cf. final assembly,

subassembly.

Bending The forming of rattan canes into various shapes. Canes softened and made

pliable with steam are forced into moulds and left there for 12-24 hours to

ensure that the desired shape is permanently formed.

Binding Wrapping of rattan furniture joints with rattan peel; leather strips or other

materials may also be used.

Bleaching Removal of stains on rattan poles by subjecting them to a bleaching solution

and an elevated temperature (60 °C for two hours). A recommended bleaching solution is 1 percent hydrogen peroxide and a 1:4 ratio of sodium

hydroxide to sodium silicate.

Buffing The sanding of moulded and bent rattan components on a buffing machine

using pneumatic cylinders and brush heads.

Caning Using split rattan or other material to weave the seats of chairs and/or sides

of rattan furniture.

Coping Synonym for scribing, q.v.

Coring Splitting of rattan canes to produce rattan cores and rattan peel.

Debarking Synonym for peeling, q.v.

Decorticating Synonym for peeling, q.v.

Dipstaining A staining process in which the component or assembled furniture piece

is dipped into a straining solution, rather than having the stain applied by

spraying or brush; cf. finishing.

Dowelling A rattan furniture construction technique for connecting components by

drilling holes and inserting dowels and glue.

Drilling Boring holes in subassembly components in preparation for final furniture

assembly when screws are used.

End-coping Coping, q.v.

Final assembly Joining together of basic frame structures into a finished piece of furniture;

this may be done in the factory or after shipment of knock-down components;

cf. assembly, sub-assembly.

Finishing Application of surface finishes to rattan furniture to lighten or darken the

surface; finishes can be clear lacquers, stains or pigmented lacquers.

Grinding machine Peeling machine, q.v.

Grooving Cutting an indentation and drilling a series of holes in a rattan chair frame so

that it can be caned with rattan strips or some other material.

Jointing The attachment of component parts of rattan frames and seats; common

structural joints are: chucking and boring (mortise and tenon); scribing or coping; cross lap joint; end half-lap joint or splicing; mitre joint; dowel joint

(for seat frames).

Peeling Removal of the outer portion of the rattan cane by either manual or

mechanical means; also called debarking, decorticating.

Peeling machine An industrial machine used to peel rattan canes; also called a grinding

machine.

Personal protective equipment (PPE) Protective gear worn by workers engaged in activities such

as rattan furniture finishing where spray guns are used.

Plastic coating The practice of applying a coating of plastic to poor quality rattan skin

before it is used for weaving.

Polishing Term used to refer to the sanding (q.v.) of peeled rattan poles.

Rattan cooker The term for a simple cylindrical metal structure with one end closed and the

other with a swing door, within which rattan canes are placed for steaming.

Rattan set A matching group of furniture pieces having the same design patterns and

finish; a typical rattan parlour set consists of a sofa, one or two chairs, an end

table and coffee table.

Rattan splitting machine An industrial machine used to split rattan canes to produce core and/or

peel.

Rounding machine An industrial machine used to peel rattan canes; cf. peeling.

Sanding The passing of straight poles through a profile sanding machine. At least

three profile sanders are used (coarse, medium and fine) so that components

can be finished in one pass.

Scribing The most common jointing system for rattan furniture. The round section

of rattan is scribed to create a perfect fit during assembly; scribing is done manually with a gouge chisel or a specially designed cutting bit on an electric

drill.

Splitting Longitudinally dividing canes to produce material weaving (caning) and

binding by peeling away the hard outer skin; the core produced is rounded to make round core, or resplit into smaller sections by hand or machine.

Staining changing the colour of rattan canes through the use of stains or pigmented

lacquers; cf. finishing.

Standard Specifications for Rattan Furniture Details in Appendix VI, q.v.

Steaming The process of heating rattan canes in water vapour at 100 °C for 20–30

minutes to permit bending to virtually any curvature.

Straightening The use of improvised tools or a hydraulic machine to straighten bent canes

before they are cut into lengths for furniture components.

Subassembly Formation of the basic frame structures of a piece of furniture, which may

constitute knock-down components for shipping and final assembly by a

wholesaler; cf. assembly, final assembly.

Weaving A synonym for caning.

TRADE

Atmospheric damage

Damage to packaged rattan furniture by moisture, fumes, dust, dirt and sunlight. This type of damage can be minimized by lining export crates or boxes with bituminized paper or polyethlene film, leaving the bottom open to help avoid condensation.

Complete construction

Furniture that is fully constructed and does not need any assembly before being sold on the retail market; cf. completely knock-down; knock-down.

Completely knock-down (CKD)

A method of furniture construction of flat and straight components intended to be assembled in a factory before retail sale. Advantages of CKD furniture are convenience of packaging and reduced freight charges through more efficient use of container space. CKD construction does not reduce the strength or performance of the furniture; cf. knock-down.

Compression damage

Damage to packaged rattan furniture caused by stacking pallets too high resulting in excessive compression forces on the bottom pallets. This type of damage can be avoided by using sturdy crates that are adequately braced and supported inside and can support up to 10 tonnes. The best protection is to ship in a freight container.

Containerized shipment

Export of rattan furniture in a large metal container that minimizes handling, loss and damage; containers can be loaded at the furniture factory and transported by truck to a port for sea shipment.

Impact damage

Damage to packaged rattan furniture caused by crates being dropped. This type of damage can be reduced by holding furniture away from the sides and edges of the crate by using corrugated board and padding the furniture.

Knock-down (KD)

A method of furniture construction between completely knock down and complete construction; components are made so that they can be assembled by the retail customer. KD affords some efficiency in terms of packaging and freight charge savings.

Lampit

A type of floor mat made in Indonesia from rattan splits which are threaded together; exported to Japan where it is known as *tatami*, q.v.

Middleman

Trader, q.v.

Semi-processors

Generally small-scale operators who buy raw rattan from collectors and produce washed and sulphured rattan and a variety of semi-processed products; cf. trader.

Tatami

Japanese term for floor mats made of rattan splits joined together with strings pierced through them; lampit, q.v.

Thick-reed furniture

Term for furniture made of rattan core; not considered rattan furniture in the strict sense.

Tikar

A fine floor mat made in Indonesia from rattan splits which are threaded together; an export item,

Trader A town-based, provincial or city-based individual who purchases rattan

from cutters and sells it to buyers who are generally semi-processors or manufacturers. Traders typically operate under either informal or formal business arrangements with the cutters and buyers, and may deal in raw or

partially processed canes.

Vibration damage Damage to packaged rattan furniture caused by rubbing of furniture parts

against each other or against the inside of the package. This type of damage can be eliminated by immobilizing the furniture in its container and allowing as little movement as possible between the finish and any surface that

contacts it.

MISCELLANEOUS

Atap (Malay) Thatch made (usually in panels) by bending palm leaflets over a lath or the

leaf-rachis; certain species of Calamus and Daemonorops are so used.

BARSTOOL Bamboo and Rattan Science and Technology Links - Products and

Applications. A bamboo and rattan technical advisory group on products and applications issues, initiated by INBAR. Web site: www.smartgroups.com/

groups/barstool-pa

Bentwood A general term referring to furniture with major components that are bent

and not cut into shape; sometimes applied to rattan furniture.

Buri Common name for the palm Corypha utan and the split petioles from it used

in the Philippines to make rattan-like furniture.

Chicks Slatted blinds sometimes made with rattan petioles from which the spines

have been removed.

Dragon's blood A dark-red resin exuded from fruit of a few species of Daemonorops; e.g.

D. draco, D. didymophylla and others. Not to be confused with a similar

product from the dragon tree, Dracaena draco, which is not a palm.

INBAR International Network for Bamboo and Rattan. Established in 1993 with

headquarters in New Delhi, India; headquarters moved to Beijing, China in 1998. Supports research and publishes books, studies and a news magazine.

Web site: www.inbar.int

Jernang (Malay) dragon's blood, q.v.

Lawyer cane A variable common name applied to four different species of Calamus in

Australia: C. australis, lawyer cane; C. caryotoides, fishtail lawyer cane;

C. moti, yellow lawyer cane; and C. muelleri, southern lawyer cane.

Malacca cane A walking stick made from the stem of Calamus scipionum, esteemed

because of its long internodes; sticks made from a single internode command

the highest prices; named after the export port.

PCS A production to consumption system analysis; in the case of rattans it

consists of an analysis of the stock and flow of rattan from the harvesting of the raw material to the final product and market. Each point of product transformation or processing is examined with regard to the stakeholders

involved, the functions performed and the market linkages.

Rattan Business, News & Community. Web site: www.rattanlink.com

RIC

Rattan Information Centre. Founded in 1982 and located at Forest Research Institute Kepong, Selangor, Malaysia. Supported research and published books, studies and the RIC Bulletin until 1993. The RIC Bulletin is scheduled to be resuscitated as an e-bulletin in 2002 and published twice per year. Web site: www.frim.gov.my

Sepak raga (Malay)

A game played in Southeast Asia using a flexible ball made of split rattan.

Shoot

The edible apical meristem, growing point or palm heart. At least three commercial rattan species are exploited for this product: Calamus.

simplicifolius; C. tenuis and Daemonorops jenkinsiana.

Takraw (Thai)

Sepak raga, q.v.

Umbut (Malay)

General term in Southeast Asia for the soft, edible shoot of a rattan; shoot,

q.v.

Wicker

A general term applied to woven furniture and baskets. Among the pliant raw materials used to make wicker ware are rattan, bamboo, willow, reeds, etc.

VERNACULAR NAMES

			Language (L),
Vernacular name	Genus/Species	Country/ Region	Geographic area (G),
		8	Notes
Abuan	Calamus diepenhorstii	Philippines	
Ain	Korthalsia ferox	Borneo	Kenyah Dayak (L)
Air	Calamus erinaceus	Malaysia	
	Daemonorops angustifolia	Malaysia	
	D. fissa	Borneo	
Ambalua	Plectocomiopsis geminiflora	Malaysia	Kedazan (L), Sabah (G)
Apas	Calamus reyesianus	Philippines	
Arichural	Calamus travancoricus	India	Malayalam (L), Kerala (G)
Arorog	Calamus javensis	Philippines	
Arugda	Calamus arugda	Philippines	Ibanag (L)
Arurug	Calamus javensis	Philippines	Palawan (G)
Babuyan	Calamus usitatus	Philippines	Sambal (L)
Baiteng	Calamus tetradactylus	China	
Bala mata	Daemonorops fissa	Borneo	Kenyah Dayak (L)
Balala	Calamus multinervis	Philippines	
Banakbo	Calamus megaphyllus	Philippines	Manobo (L)
Bara bet	Calamus viminalis	Bangladesh	Chittagong (G)
Barahuasca	Desmoncus mitis	Peru	
Batang	See: rotan batang		
Batang merah	Daemonorops robusta	Indonesia	Central Sulawesi (G)
Batu	See: rotan batu		
Bayabong	Calamus manillensis	Philippines	Manobo (L)
Be'ang	Korthalsia echinometra	Borneo	Kenyah Dayak (L)
Bioengan	Daemonorops sabut	Borneo	Benuaq Dayak (L)
Borangan	Calamus ornatus	Philippines	Mindanao (G)
Boro bet	Calamus viminalis	India	
Botet	Korthalsia furtadoana K. rostrata	Borneo Borneo	(both) Samarinda trade
Boyukng	Calamus optimus	Borneo	Benuaq Dayak (L)
Butarak	Calamus vidalianus	Philippines	Ilokano (L)
Cekolo	Myrialepis paradoxa	Indonesia	Sumatra (G)
Charab	Calamus andamanicus	India	Andaman Islands (G)
China bet	Calamus pseudorivalis	India	Nicobar Islands (G)
Chowdah	Calamus andamanicus	India	Andaman Islands (G)
Coo cemee	Calamus blumei	Malaysia	
Coon cemees	Calamus blumei	Malaysia	
Coonk stook	Calamus javensis	Malaysia	Perak (G)
Da-teng	Calamus wailong	China	
Dagdag	Calamus siphonospathus	Philippines	Ilokano (L)
Dahan	See: rotan dahan		
Dalimban	Calamus melanorhynchus	Philippines	Bagobo (L)
Danan	Korthalsia ferox	Borneo	Bentian & Benuaq Dayak (L)
Danye shengteng	Calamus simplicifolius	China	Hainan Island (G)
Dara panda	Calamus scabridulus	Indonesia	
Datu	Calamus minahassae	Indonesia	Sulawesi (G)
Demenai	Calamus gonospermus	Borneo	Kenyah Dayak (L)

Vernacular name	Genus/Species	Country/ Region	Language (L), Geographic area (G), Notes
Demere	Calamus deërratus	Ghana	Twi (L) and trade name
Dhangri bet	Calamus leptospadix	India	
Ditaan	Daemonorops ochrolepis	Philippines	
Dok	See: rotan dok		
Douung-douung	Calamus cumingianus	Philippines	Manobo (L)
Dre sekam	Daemonorops micracantha	Malaysia	Pahang (G)
Duanye shengteng	Calamus egregius	China	
Golak bet	Daemonorops jenkinsiana	India	
Gonot pipit	Daemonorops fissa	Malaysia	
Hamlis	Calamus discolor	Philippines	10 to
Hanapas	Calamus usitatus	Philippines	Bikol (L)
Hoe cacing	Calamus ciliaris	Indonesia	Sundanese (L)
Hongteng	Daemonorops jenkinsiana	China	/
Howe belukbuk	Calamus burckianus	Indonesia	Western Java (G)
Howe cacing	Calamus heteroideus	Indonesia	Jana (2)
110we enemy	C. javensis	Indonesia	Western Java (G)
Howe gelang	Calamus polystachys	Indonesia	Western Java (G)
Howe seel	Daemonorops melanochaetes	Indonesia	Western Java (G)
Huangteng	Daemonorops jenkinsiana	China	, vestern jura (e)
Huwi pantis	Calamus luridus	Indonesia	Sumatra (G)
Ilem		Borneo	
	Calamus pilosellus		Kenyah Dayak (L)
Inai Irit	Ceratolobus subangulatus See: rotan irit	Borneo	Bentian Dayak (L)
Jacitara	Desmoncus giganteus D. mitis D. orthacanthos D. polyacanthos	Brazil Brazil Brazil Brazil	
Jaoei	Calamus tomentosus	Borneo	Kenya Dayak (L)
Jarmasi	Calamus leiocaulis	Indonesia	Sulawesi (G)
Jati bet	Calamus tenuis	India	Juliu West (G)
Jehab	Calamus trachycoleus	Borneo	Bentian & Benuaq Dayak (L) Samarinda trade
Jelayan	Calamus ornatus	Borneo	
Jepung	Daemonorops crinita	Borneo	Bentian & Benuaq Dayak (L) Samarinda trade
Jungan	Daemonorops sabut	Indonesia	East Kalimantan (G)
Kalapit	Calamus microcarpus	Philippines	Bikol (L)
Keb	Korthalsia cheb	Malaysia	,
Keerah	Calamus densiflorus	Thailand	
Kehes	Calamus pandanosmus	Borneo	(both) Bentian & Benuaq
Kenes	Calamus rhytidomus	Borneo	Dayak (L), Samarinda trade
Kehes murah	Calamus pilosellus	Borneo	Samarinda trade
Keplar	Daemonorops ingens	Malaysia	
Kesoleg	Calamus ornatus	Borneo	Bentian Dayak (L)
Kodi	Eremospatha macrocarpa	DR Congo	Luba (L)
Kokop	Calamus bacularis	Malaysia	Penan (L), Sarawak (G)
Korak bet	Calamus latifolius	India	1 Chan (L), Jarawak (G)
Kotok	See: rotan kotok	Iliula	
Kulakling	See: rotan kotok Calamus microsphaerion	Philippines	

			Language (L),
Vernacular name	Genus/Species	Country/	Geographic area (G),
		Region	Notes
Kumaboy	Calamus discolor	Philippines	Tagalog (L)
Kurakling	Calamus spinifolius	Philippines	Pampanga (L), Tagalog (L)
Labit	Calamus microsphaerion	Philippines	Tagalog (L)
Lalun	Korthalsia furtadoana	Borneo	Bentian & Benuaq Dayak (L)
Lalun djengan	Korthalsia rostrata	Borneo	Benuaq Dayak (L)
Lambutan	Calamus halconensis var. dimorphacanthus	Philippines	Tagalog (L)
1	C. microcarpus	Philippines	
Lapa	Daemonorops lamprolepis	Indonesia	
Laru	Calamus symphysipus	Indonesia	Central Sulawesi (G)
Lasas	Korthalsia robusta	Malaysia	
Lasi	Calamus bicolor	Philippines	
Latea	Daemonorops lamprolepis	Indonesia	Southern Sulawesi (G)
Lauro sura	Calamus didymocarpus	Indonesia	Southern Sulawesi (G)
Lembulu	Calamus hispidulus	Borneo	Kenyah Dayak (L)
Leme	Calamus longisetus	Myanmar	
Lempinit landang	Daemonorops micracantha	Malaysia	Sandakan (G)
Lempinit pahetan	Daemonorops elongata	Malaysia	
Lempinit tingkau	Calamus paspalanthus	Malaysia	
Lempinit ular-ular	Calamus javensis	Malaysia	Sabah (G)
Leutik	Calamus caesius	Sarawak	
Limuran	Calamus ornatus	Philippines	Luzon (G)
Lintokan	Calamus manillensis	Philippines	Bagobo (L)
Liteng	Calamus egregius	China	Hainan Island (G)
Litoko	Calamus manillensis	Philippines	Ifugao (L)
Lukuan	Calamus reyesianus	Philippines	
Lumpit	Daemonorops calicarpa	Malaysia	
Ma wewel	Calamus ovoideus	Sri Lanka	Sinhala (L)
Mai lepe	Calamus conirostris	Malaysia	
Makak	Laccosperma secundiflorum	West Africa	Trade name
Manau	See: rotan manau		
Manau riang	Calamus oxleyanus	Indonesia	Palembang (G)
Manau tikus	Calamus manan	Malaysia	Small diameter only; see: rotan manau tikus
Mangkawayan	Calamus subinermis	Borneo	Kadazan/Dusun (L)
Mantang	Calamus ornatus Plectocomia elongata	Malaysia Malaysia	
Matakito	Calamus leptostachys	Indonesia	Buton (G)
Matamba	Desmoncus cirrhiferus	Colombia	
Matkong	Calamus mitis	Philippines	Ilokano (L)
Me'a	Korthalsia echinometra	Borneo	Bentian & Benuaq Dayak (L)
Moa	Plectocomiopsis geminiflora	Malaysia	Bidayuh (L), Sarawak (G)
Nag betta	Calamus nagbettai	India	Karnataka (G)
Nat	Calamus andamanicus	India	Nicobars (G)
Ngenau	Calamus manan	Borneo	Bentian & Benuaq Dayak (L)
Nguay	Calamus peregrinus	Thailand	
Nkan	Laccosperma robustum L. secundiflorum	Cameroon, Equatorial Guinea, Gabon	Fang (L)

Vernacular name	Genus/Species	Country/ Region	Language (L), Geographic area (G), Notes	
Nlong	Eremospatha macrocarpa	Cameroon, Equatorial Guinea, Gabon	Bulu (L), Fang (L)	
Nue waatang	Calamus didymocarpus	Indonesia		
Padao	Calamus viminalis	Cambodia		
Pakoe	Calamus pilosellus	Borneo	Bentian & Benuag Dayak (L)	
Palaklakanin sumulid	Daemonorops ochrolepis	Philippines	Tagalog (L)	
Palanog	Calamus symphysipus	Philippines	Luzon (G)	
Palasan	Calamus merrillii	Philippines	Biko (L), Marobo (L), Tagalog (L)	
Palem paris	Calamus ciliaris	Indonesia	Horticulture	
Palimanok	Calamus siphonospathus	Philippines	Pampanga (L)	
Panlis	Calamus ramulosus	Philippines	Tagalog (L)	
Pannichural	Calamus thwaitesii	India	Malayalam (L)	
Parasan	Calamus merrillii	Philippines	Bisaya (L)	
Pelus	Calamus javensis	Borneo	Bentian Dayak (L)	
Pelus belang	Ceratolobus subangulatus	Borneo	Benuaq Dayak (L)	
Pelus djengan	Ceratolobus subangulatus	Borneo	Benuaq Dayak (L)	
Pelus lintung	Calamus flabellatus	Borneo	Bentian Dayak (L)	
Pelus mingay	Calamus javensis	Borneo	Benuaq Dayak (L)	
Pelus susu	Calamus javensis	Borneo	Benuaq Dayak (L)	
Pelus tulukn	Ceratolobus concolor	Borneo	Benuaq Dayak (L)	
Penjalin cacing	Calamus viminalis	Indonesia	Bali (G)	
Perambu	Calamus rotang	India		
Pitpit	Daemonorops curranii	Philippines		
Pondos alus	Calamus minahassae	Indonesia	Northern Sulawesi (G)	
Pondos batang	Calamus zollingeri	Indonesia	Sulawesi (G)	
Pondos embel	Calamus symphysipus	Indonesia	Northern Sulawesi (G)	
Pulut merah	Ceratolobus concolor C. subangulatus	Borneo Borneo	(all) Samarinda trade	
	Daemonorops crinita	Borneo		
Pulut putih	Calamus flabellatus C. javensis	Borneo Borneo	(both) Samarinda trade	
Rasi	Calamus bicolor	Philippines		
Red rattan	Daemonorops jenkinsiana	China		
Rimoran	Calamus ornatus	Philippines	Palawan (G)	
Rong	Calamus inermis	India		
Ronti	Calamus leptostachys	Indonesia		
Rotan air	Calamus blumei C. tomentosus	Borneo Borneo Indonesia	Samarinda trade Samarinda trade	
Rotan asas	C. zollingeri Korthalsia robusta		Moluccas (G), Seram (G)	
		Malaysia		
Rotan bacap	Daemonorops leptopus	Malaysia	Nami Sambila (C)	
Rotan bakul	Daemonorops micracantha	Malaysia	Negri Sembilan (G)	
Rotan bangkorn Rotan batang	Daemonorops elongata Calamus zollingeri	Malaysia Indonesia	Sandakan (G)	

			Language (L),
Vernacular name	Genus/Species	Country/ Region	Geographic area (G),
		8	Notes
Rotan batu	Calamus convallium	Borneo	Kenyah Dayak (L)
	C. diepenhorstii	Indonesia	Except Sulawesi (G)
	C. flabellatus	Malaysia	
	C. insignis	Malaysia	
n 1 1	C. subinermis	Malaysia	
Rotan bejungan	Daemonorops fissa	Indonesia	Central Kalimantan (G)
Rotan belubu	Daemonorops periacantha	Malaysia	Sabah (G)
Rotan bembangin	Calamus marginatus	Malaysia	Sandakan (G)
Rotan berman	Calamus flabellatus	Indonesia	
Rotan besi	Calamus marginatus	Indonesia	Palembang (L)
Rotan boga	Calamus koordersianus	Indonesia	Central Sulawesi (G)
Rotan buku dalam	Calamus ornatus	Indonesia	Northern Sulawesi (G)
Rotan buku hitam	Calamus palustris	Malaysia	Peninsular Malaysia (G)
Rotan bulu	Calamus hispidulus	Indonesia	
Rotan bulu rusa	Daemonorops robusta	Indonesia	Western Seram (G), Ambon (G)
Rotan cacing	Calamus heteroideus	Indonesia	Western Java (G)
	C. javensis	Philippines	
	C. unifarius	Indonesia	Wrongly applied
	C. viminalis	Indonesia	Sumatra (G), Java (G)
Rotan cucor	Calamus castaneus	Malaysia	
Rotan dago kancil	Calamus conirostris	Indonesia	
Rotan dahan	Korthalsia echinometra	Malaysia	
	K. flagellaris	Malaysia	
	K. laciniosa	Malaysia	
Rotan dalem buku	K. rigida	Malaysia	
	Calamus conirostris	Indonesia	6 11 (6)
Rotan damp	Daemonorops fissa	Malaysia	Sandakan (G)
Rotan demuk	Calospatha scortechinii	Malaysia	0.1 (0)
Rotan dok	Calamus ornatus	Malaysia	Selangor (G)
Rotan dudok	Calamus perakensis	Malaysia	
D . 1	C. sedens	Malaysia	
Rotan getah	Daemonorops angustifolia D. melanochaetes	Malaysia Malaysia	Peninsular Malaysia (G)
Dotan Guine	Calamus exilis	Indonesia	1 chinisular malaysia (G)
Rotan gunung Rotan irit		Indonesia	Kalimantan (G)
	Calamus trachycoleus	Indonesia	19-1
Rotan jergang	Daemonorops draco Calamus leiocaulis	Indonesia	Sumatra (G)
Rotan jermasi	101-000-00	Indonesia	Comment (C)
Rotan jernang	Daemonorops draco D. micracantha	Malaysia	Sumatra (G)
	D. micracanina D. propingua	Malaysia	Peninsular Malaysia (G)
Rotan kerai	Calamus conirostris	Malaysia	2 0000000000000000000000000000000000000
1 COUNT ICCIMA	C. luridus	Malaysia	
	C. scabridulus	Malaysia	
Rotan kerai	Calamus simplex	Malaysia	
gunung	1		
Rotan kerai hitam	Calamus diepenhorstii	Malaysia	Peninsular Malaysia (G)
Rotan kertong	Myrialepis paradoxa	Malaysia	
Rotan kesup	Calamus ornatus	Indonesia	Bengkulu (G)
Rotan kikir	Calamus scabridulus	Malaysia	
Rotan koman	Calamus diepenhorstii	Malaysia	
Rotan kotok	Daemonorops fissa	Indonesia	East Kalimantan (G)

		Country/	Language (L),
Vernacular name	Genus/Species	Region	Geographic area (G),
			Notes
Rotan kunyung	Calamus longispathus	Malaysia	
Rotan lambang	Calamus ornatus	Indonesia	Central Sulawesi (G)
Rotan legi	Daemonorops melanochaetes	Indonesia	Eastern Java (G)
Rotan lelo	Daemonorops melanochaetes	Indonesia	Sumatra (G), Bengkulu (G)
Rotan liah	Calamus laevigatus	Brunei	
Rotan lilin	Calamus exilis	Malaysia	
	C. flabellatus	Indonesia	
D 1:	C. javensis	Indonesia	Southern Kalimantan (G)
Rotan lintang	Calamus pilosellus	Indonesia	
Rotan manau	Calamus manan		General throughout the region and trade
Rotan manau	Calamus tumidus	Malaysia	Northern Peninsular Malaysia
buku hitam	Cl	T 1	(G)
Rotan manau padi	Calamus marginatus	Indonesia	Bangka (G)
Rotan manau telur	Calamus manan	Malaysia	Peninsular Malaysia (G)
Rotan manau	Calamus tumidus	Malaysia	Peninsular Malaysia (G),
tikus		Indonesia	Sumatra (G)
Rotan maran	Calamus mattanensis	Indonesia	Kalimantan (G)
Rotan meiya	Korthalsia echinometra	Indonesia	
Rotan melukut	Calamus muricatus	Indonesia	
Rotan merah	Korthalsia cheb K. echinometra K. ferox K. flagellaris K. rigida	(all) Borneo	(all) Samarinda trade
Rotan minyak	Calamus oxleyanus Daemonorops angustifolia	Malaysia Malaysia	
Rotan murah	Calamus pogonocanthus Daemonorops sabut	Borneo Borneo	Samarinda trade Samarinda trade
Rotan ombol	Calamus symphysipus	Indonesia	Sulawesi (G)
Rotan opot	Calamus javensis	Indonesia	Sumatra (G), Bengkulu (G)
Rotan pahit	Calamus densiflorus	Malaysia	
Rotan paku	Calamus exilis	Malaysia	
Rotan pasir	Calamus palustris	Malaysia	Perak (G)
Rotan patani	Calamus minahassae	Indonesia	Central Sulawesi (G)
Rotan patis	Calamus unifarius	Indonesia	Western Java (G)
Rotan pehekan	Calamus marginatus	Indonesia	Southern Kalimantan (G)
Rotan pipit	Daemonorops elongata	Malaysia	Journal Raimallan (0)
Rotan pitik	Daemonorops oblonga	Indonesia	
Rotan poprok	Daemonorops oblonga Daemonorops oblonga	Indonesia	Eastern Java (G)
Rotan putih	Calamus diepenhorstii	Indonesia	Lastern Java (G)
		Malaysia	Sabah (G)
Rotan rilang	Plectocomiopsis geminiflora	Malaysia	Malay (L)
Rotan riman	Calamus blumei	Malaysia	Sabah (G)
Rotan rua	Plectocomiopsis geminiflora	Indonesia	
Rotan sabong	Calamus polystachys	Malaysia	Peninsular Malaysia (G)
Rotan sabung	Calamus polystachys	Malaysia	
Rotan sabut	Calamus conirostris Daemonorops sabut	Malaysia Malaysia	Temuan (L)
Rotan sakat	Calamus muricatus	Indonesia	Kalimantan (G)

			Language (L),
Vernacular name	Genus/Species	Country/	Geographic area (G),
		Region	Notes
Rotan sega	Calamus caesius		General throughout region
«B			and in trade
"Rotan sega"	C. rhytidomus	Indonesia	Nunukan, East Kalimantan
Rotan sega air	Calamus axillaris	Indonesia	
8		Malaysia	
Rotan sega batu	Calamus diepenhorstii	Indonesia	Except Sulawesi (G)
Rotan sega beruang	Calamus palustris	Malaysia	Pahang (G)
Rotan sego	Calamus caesius	Indonesia	Sumatra (G)
	C. optimus	Indonesia	Bengkulu (G)
Rotan semambu	Calamus scipionum		General throughout region and in trade
Rotan semampun	Calamus laevigatus	Malaysia	Name also used for
-			C. praetermissus J. Dransf.
Rotan semut	Korthalsia rostrata	Malaysia	
Rotan sendang	Daemonorops grandis	Singapore	
Rotan sepet	Daemonorops hystrix	Indonesia	
Rotan sirikis	Calamus paspalanthus	Malaysia	Peninsular Malaysia (G)
Rotan sotong	Plectocomiopsis geminiflora	Indonesia	Sumatra (G)
Rotan susu	Daemonorops robusta	Indonesia	Northern Sulawesi (G)
Rotan tahi ayam	Calamus tomentosus	Malaysia	
Rotan tahi landak	Daemonorops hystrix	Malaysia	Peninsular Malaysia (G)
Rotan taman	Calamus caesius	Indonesia	Southern and central Kalimantan (G)
	C. optimus	Indonesia	Central Kalimantan (G)
Rotan teling	Calamus palustris	Malaysia	Kedah/Perlis (L)
Rotan tohiti	Calamus inops C. subinermis	Indonesia	
Rotan tukas	Calamus blumei	Malaysia	Perak (G)
	C. tomentosus	Malaysia	
Rotan tunggal	Calamus laevigatus	Malaysia	Selangor (G)
	C. occidentalis	Java	Malay (L)
	C. subinermis Daemonorops didymophylla	Malaysia Indonesia	
Rotan udang	Korthalsia rostrata	Malaysia	
Rotan wi jerenang	Daemonorops micracantha	Malaysia	
Rotan wi jerenang Rotan wuluh	Calamus unifarius	Indonesia	Eastern Java (G)
Rotan yuk	Calamus muricatus	Malaysia	Sabah (G)
Rote hatu	Calamus javensis	Thailand	Japan (O)
Runti	Calamus leptostachys	Indonesia	Sulawesi (G)
Sababai	Calamus elmerianus	Philippines	Manobo (L)
Saba-ong	Calamus grandifolius	Philippines	Tagalog (L)
Samanid	Calamus elmerianus	Philippines	Bagobo (L)
Sambonotan	Calamus bicolor	Philippines	Bagobo (L)
Samole	Calamus pedicellatus	Indonesia	Bugis (G)
Samulid	Calamus reyesianus	Philippines	Tagalog (L)
Sanam	Korthalsia cheb	Borneo	Kenyah Dayak (L)
Sanka beth	Daemonorops kurzianus	India	Andaman Islands (G)
Saput Saput	Calamus laevigatus	Borneo	Kenyah Dayak (L)

Vernacular name	Genus/Species	Country/ Region	Language (L), Geographic area (G), Notes
Sarani	Calamus moseleyanus	Philippines	Bagobo (L)
Saranoi	Daemonorops curranii	Philippines	Tagbanva (L)
Savit asag	Daemonorops sparsiflora	Malaysia	Penan (L), Sarawak (G)
Savit payah	Daemonorops longispatha	Malaysia	Penan (L), Sarawak (G)
Sega	See: rotan sega		
Sega batu	Calamus marginatus	Borneo	Samarinda trade
Sek batang	Calamus ornatus	Malaysia	Pahang (G)
Seka	Calamus caesius	Borneo	Kenyah Dayak (L)
Sekei udang	Daemonorops melanochaetes	Indonesia	Riau (G)
Selutup	Calamus optimus	Borneo	Samarinda trade
Semambu	See: rotan semambu		
Semoleh	Calamus pogonocanthus	Borneo	Kenyah Dayak (L)
membatong		D	T 1 D 1 (T)
Semoleh timaitong	Calamus pogonocanthus	Borneo	Kenyah Dayak (L)
Seringan	Daemonorops sabut	Borneo	Kenyah Dayak (L)
Si'it	Calamus marginatus	Borneo	Benuaq Dayak (L)
Si'it batu	Calamus marginatus	Borneo	Bentian Dayak (L)
Sika	Calamus caesius	Philippines	
Sika-sika	Calamus microsphaerion	Philippines	
Silau-silau	Calamus gibbsianus	Malaysia	Sabah (G)
Sintang	Daemonorops hystrix	Indonesia	Palembang (L)
Sokag	Calamus caesius	Borneo	Bentian & Benuaq Dayak (L)
Sudu wewel	Calamus ovoideus	Sri Lanka	Sinhala (L)
Suko	Calamus optimus	Indonesia	South Kalimantan (G)
Sundi bet	Calamus guruba	India	
Takathong	Calamus caesius	Thailand	Rangea District, Narathiva Province (G)
Talola	Calamus siphonospathus	Philippines	Tagalog (L)
Taman	See: rotan taman		8 6 7
Tandulang-glubat	Calamus microcarpus	Philippines	Tagalog (L)
Tandulang-parang	Calamus usitatus	Philippines	Tagalog (L)
Tebdas	Calamus mitis	Philippines	Ivatan (L)
Tebungan	Calamus ornatus	Borneo	Kenyah Dayak (L)
Tehri bet	Plectocomia himalayana	India	Itony an Day an (13)
Teland	Calamus leptostachys	Indonesia	South Sulawesi (G)
Teretes	Daemonorops rubra	Indonesia	Western Java (G)
Thuda rena	Calamus ovoideus	Sri Lanka	Sinhala (L)
Timai	Calamus javensis	Borneo	(both) Kenyah Dayak (L)
	Ceratolobus concolor	Borneo	
Toan pekat	Daemonorops sabut	Malaysia	Sabah (G)
Tohiti	See: rotan tohiti		
Tohiti siombo	Calamus didymocarpus	Indonesia	Central Sulawesi (G)
Tomani	Calamus boniensis	Indonesia	Southern Sulawesi (G)
Tumalim	Calamus mindorensis	Philippines	Tagalog (L)
Tumaram	Calamus mindorensis	Philippines	Bikol (L)
Tuwu	Calamus scipionum	Borneo	Bentian & Benuaq Dayak (L)
Ubanon	Calamus discolor	Philippines	Cebu Bisaya (L)
Ubli	Calamus multinervis	Philippines	Ilokano (L)
Udat	Daemonorops didymophylla	Malaysia	Penan (L), Sarawak (G)

		_	Language (L),
Vernacular name	Genus/Species	Country/ Region	Geographic area (G),
		itegion.	Notes
Udom bet	Calamus longisetus	Bangladesh	Cox's Bazar (G)
Ue puti	Calamus albus	Indonesia	
Uwai belalong	Retispatha dumetosa	Brunei	
Uwai kiton	Calamus ornatus	Brunei	
Uwai lambat	Daemonorops periacantha	Brunei	
Uwai pagit	Calamus marginatus	Brunei	
Uwai pegit	Calamus conirostris	Brunei	
Uwai peladas	Calamus javensis	Brunei	
Uwai podos	Calamus javensis	Brunei	
Uwai taut	Calamus axillaris	Brunei	
	C. pogonacanthus	Brunei	
Uwai telong	Calamus optimus	Malaysia	
Uwau paya	Calamus marginatus	Malaysia	Sarawak (G)
Uwe ahun tain	Calamus albus	Indonesia	Ambon (G)
Uwe rence	Calamus minahassae	Indonesia	Southern Sulawesi (G)
Uwe sangkayu- kayu	Calamus symphysipus	Indonesia	Southern Sulawesi (G)
Uwi hurang	Korthalsia echinometra	Indonesia	
Uwi jernang kecil	Daemonorops didymophylla	Indonesia	Palembang (G)
Uwi kalang	Daemonorops hystrix	Indonesia	
Uwi pahe	Calamus exilis	Indonesia	Palembang (G)
Vara casha	Desmoncus giganteus	Peru	8(-)
Velichural	Calamus hookerianus	India	Malayalam (L)
Waai chaang	Calamus ornatus	Thailand	Pattani (G)
Waai khring	Calamus palustris	Thailand	Trang (G)
Waai kung	Myrialepis paradoxa	Thailand	Trang (G)
Waai maithao	Calamus scipionum	Thailand	Peninsular Malaysia (G)
Waai phon khon non	Daemonorops sabut	Thailand	
Wae dangah	Daemonorops hystrix	Malaysia	Penan (L), Sarawak (G)
Wae saput	Calamus laevigatus	Malaysia	Sabah (G)
Wae sawit usen	Calamus muricatus	Malaysia	Penan (L), Sarawak (G)
Wai boun	Calamus rudentum	Lao PDR	
Wai-chak	Daemonorops grandis	Thailand	
Wai-chakkao	Calamus castaneus	Thailand	
Wai-dam	Calamus oxleyanus	Thailand	
Wai-hin	Calamus insignis	Thailand	
Wain hom	Calamus acanthospathus	Lao PDR	
	C. gracilis	Lao PDR	
Wai kaepung	Calamus blumei	Thailand	Surattani (G)
Wai-kamphuan	Calamus longisetus	Thailand	
Wai-khao	Calamus castaneus	Thailand	
Wai-khipet	Daemonorops didymophylla	Thailand	
Wai-khom	Calamus diepenhorstii	Thailand	
	C. siamensis	Lao PDR	W
Wai kuan	Calamus javensis	Thailand	Pattani (G)
Wai- kungnamphar a i	Plectocomiopsis geminiflora	Thailand	
Wai kunun	Calamus blumei	Thailand	Trang (G)
Wai lau cincin	Calamus polystachys	Indonesia	Sumatra (G)

			Language (L),
Vernacular name	Genus/Species	Country/ Region	Geographic area (G),
			Notes
Wai mon	Calamus viminalis	Thailand	
Wai-nam	Daemonorops angustifolia	Thailand	
Wai namleuang	Calamus platycanthus	Lao PDR	
Wai nwn	Calamus nambariensis	Lao PDR	
Wai sam bai taw	Calamus viminalis	Thailand	
Wai sideken	Calamus unifarius	Indonesia	Western Sumatra (G)
Wai som	Calamus viminalis	Thailand	
Wai-somm	Daemonorops jenkinsiana	Thailand	
Wai ta kha thong	Calamus caesius	Thailand	
Wai tek	Calamus javensis	Thailand	Southern Thailand (G)
Wai thoon	Calamus poilanei	Lao PDR	
Wai thork	Calamus solitarius	Lao PDR	
Wai wan	Calamus rhabdocladus	Lao PDR	
Wailong	Calamus wailong	China	
We maliang	Calamus ornatus	Malaysia	Sarawak (G)
Wee jematang	Korthalsia cheb	Malaysia	
tengan		-/	
Wee ligur	Calamus conirostris	Malaysia	Kayan (L)
Wee lumbak	Calamus ruvidus	Malaysia	Iban (L), Sarawak (G)
Wei dangh	Calamus myriacanthus	Malaysia	Penan (L), Sarawak (G)
Wei saput	Calamus mattanensis	Malaysia	Penan (L), Sarawak (G)
White rattan	Calamus tetradactylus	China	
Wi anak	Calamus javensis	Brunei	
	C. laevigatus	Brunei	
Wi babut	Calamus bacularis	Malaysia	Bidayuh (L), Sarawak (G)
Wi batu	Calamus diepenhorstii	Malaysia	Iban (L)
Wi belubu	Daemonorops longispatha	Brunei	
Wi buluh	Calamus erioacanthus	Malaysia	Sarawak (G)
Wi danum	Calamus conirostris	Brunei	
Wi darum	Daemonorops didymophylla	Brunei	
	D. ingens	Malaysia	Iban (L), Sarawak (G)
Wi dudok	Calamus myriacanthus	Malaysia	
	Daemonorops ruptilis	Malaysia	Iban (L), Sarawak (G)
Wi duduk	Daemonorops hystrix	Malaysia	Iban (L), Sarawak (G)
Wi embalua	Plectocomiopsis geminiflora	Brunei	
Wi empunoh	Daemonorops periacantha	Malaysia	
Wi empunok	Daemonorops periacantha	Brunei	
		Malaysia	Sarawak (G)
Wi empunok ruai	Daemonorops scapigera	Malaysia	Iban (L), Sarawak (G)
Wi gemaing	Calamus axillaris	Brunei	
Wi jerenang	Daemonorops didymophylla	Brunei	
Wi labu	Calamus pilosellus	Brunei	
Wi laleh	Plectocomiopsis geminiflora	Malaysia	Iban (L), Sarawak (G)
Wi lantak patong	Calamus mattanensis	Malaysia	Iban (L), Sarawak (G)
Wi lemaing	Calamus axillaris	Brunei	
Wi lepoh	Daemonorops sabut	Brunei	
•		Malaysia	Sarawak (G)
Wi lohong	Calamus paspalanthus	Malaysia	Sarawak (G)
Wi matahari	Calamus marginatus	Brunei	
Wi natahari	Calamus marginatus	Malaysia	

Vernacular name	Genus/Species	Country/ Region	Language (L), Geographic area (G), Notes
Wi ondo	Daemonorops draco	Malaysia	Sarawak (G)
Wi pale	Calamus pogonacanthus	Malaysia	Kayan (L), Sarawak (G)
Wi peladas	Calamus javensis	Brunei	
Wi ruah air	Daemonorops sparsiflora	Malaysia	Iban (L), Sarawak (G)
Wi ruak ai	Daemonorops fissa	Malaysia	Sarawak (G)
Wi sego	Calamus optimus	Brunei Malaysia	Sarawak (G)
Wi semoi	Calamus semoi	Malaysia	Sarawak (G)
Wi seruing	Daemonorops ingens	Malaysia	Kayan (L), Sarawak (G)
Wi singkau	Calamus paspalanthus	Brunei Malaysia	
Wi sugi	Calamus laevigatus	Malaysia	Sarawak (G)
Wi takong	Calamus flabellatus	Brunei Malaysia	Iban (L), Sarawak (G)
Wi tapah	Calamus pseudoulur	Malaysia	Sarawak (G)
Wi tautuk	Calamus flabellatus	Malaysia	Bidayuh (L), Sarawak (G)
Wi tedong	Calamus marginatus	Malaysia	
Wi tibu	Daemonorops longispatha	Malaysia	Iban (L), Sarawak (G)
Wi tulang	Calamus bacularis C. myriacanthus	Malaysia Malaysia	Iban (L), Sarawak (G) Iban (L), Sarawak (G)
Wi tunggal	Calamus muricatus	Brunei	
Wi tunjung	Calamus muricatus	Malaysia	Iban (L), Sarawak (G)
Wi tut	Calamus pogonacanthus C. semoi	Brunei Malaysia Brunei Malaysia	Iban (L), Sarawak (G)
Yellow rattan	Daemonorops jenkinsiana	China	

CROSS-LISTING: GENUS/SPECIES TO VERNACULAR NAMES

Genus/Species	Vernacular names
Calamus acanthospathus	Wai hom
C. andamanicus	Charab, Chowdah, Nat
C. arugda	Arugda
C. axillaris	Rotan sega air, Uwai taut, Wi gemaing, Wi lemaing
C. bacularis	Kokop, Wi babut, Wi tulang
C. bicolor	Lasi, Rasi, Sambonotan
C. blumei	Coo cemee, Coon cemees, Rotan air, Rotan riman, Rotan tukas, Wai kaepung, Wai kunun
C. boniensis	Tomani
C. burckianus	Howe belukbuk
C. caesius	Leutik, Rotan sega, Rotan sego, Rotan taman, Seka, Sika, Sokag, Takathong, Wai ta kha thong
C. casteneus	Rotan cucor, Wai-chakkao, Wai-khao
C. ciliaris	Hoe cacing, Palem paris
C. conirostris	Mai lepe, Rotan dago kancil, Rotan dalem buku, Rotan kerai, Rotan sabut, Uwai pegit, Wee ligur, Wi danum
C. convallium	Batu
C. cumingianus	Douung-douung
C. deërratus	Demmere
C. densiflorus	Keerah, Rotan pahit
C. didymocarpus	Lauro sura, Nue waatang, Tohiti siombo
C. diepenhorstii	Abuan, Rotan batu, Rotan kerai hitam, Rotan koman, Rotan putih, Rotan sega batu, Wai-khom, Wi batu
C. discolor	Hamlis, Kumaboy, Ubanon
C. egregius	Duanye shengteng, Liteng
C. elmerianus	Sababai, Samanid
C. erinaceus	Air
C. erioacanthus	Wi buluh
C. exilis	Rotan gunung, Rotan lilin, Rotan paku, Uwi pahe
C. flabellatus	Pelus litung, Pulut putih, Rotan batu, Rotan berman, Rotan lilin, Wi takong, W
C. gibbsianus	Silau-silau
C. gonospermus	Demenai
C. gracilis	Wai hom
C. grandifolius	Saba-ong
C. guruba	Sundi bet
C. halconensis var. dimorphacanthus	Lambutan
C. heteroideus	Howe cacing, Rotan cacing
C. hispidulus	Lembulu, Rotan bulu
C. hookerianus	Velichural
C. inermis	Rong
C. inops	Rotan tohiti
C. insignis	Rotan batu, Wai-hin
C. javensis	Arorog, Arurug, Coonk stook, Howe cacing, Lempinit ular-ular, Pelus, Pelus mingay, Pelus susu, Pulut putih, Rotan cacing, Rotan lilin, Rotan opot, Rote batu, Timai, Uwai peladas, Uwai podos, Wai kuan, Wai tek, Wi anak, Wi peladas
C. koordersianus	Rotan boga
C. laevigatus	Rotan liah, Rotan semampun, Rotan tunggal, Saput, Wae saput, Wi anak, Wi sugi

Genus/Species	Vernacular names
C. latifolius	Korak bet
C. leiocaulis	Jarmasi, Rotan jermasi
C. leptospadix	Dhangri bet
C. leptostachys	Matakito, Ronti, Runti, Teland
C. longisetus	Leme, Udom bet, Wai-kamphuan
C. longispathus	Rotan kunyung
C. luridus	Huwi pantis, Rotan kerai
C. manan	Manau tikus, Ngenau, Rotan manau, Rotan manau telur
C. manillensis	Bayabong, Lintokan, Litoko
C. marginatus	Rotan bembangin, Rotan besi, Rotan manau padi, Rotan pehekan, Sega batu, Si'it, Si'it batu, Uwai pagit, Uwau paya, Wi matahari, Wi natahari, Wi tedong
C. mattanensis	Rotan maran, Wei saput, Wi lantak patong
C. megaphyllus	Banakbo
C. melanorhynchus	Dalimban
C. merrillii	Palasan, Parasan
C. microcarpus	Kalapit, Lambutan, Tandulang-glubat
C. microsphaerion	Kulakling, Labit, Sika-sika
C. minahassae	Datu, Pondos alus, Rotan patani, Uwerence
C. mindorensis	Tumalim, Tumaram
C. mitis	Matkong, Tebdas
C. moseleyanus	Sarani
C. multinervis	Balala, Ubli
C. muricatus	Rotan melukut, Rotan sakat, Rotan yuk, Wae sawit usen, Wi tunggal, Wi tunjung
C. myriacanthus	Wei dangh, Wi dudok, Wi tulang
C. nagbettai	Nag betta
C. nambariensis	Wai nwn
C. optimus	Boyukng, Rotan sego, Rotan taman, Selutup, Suko, Uwai telong, Wi sego
C. ornatus	Borangan, Jelayan, Kesoleg, Limuran, Mantang, Rimoran, Rotan buku dalam, Rotan dok, Rotan kesup, Rotan lambang, Sek batang, Tebungan, Uwai kiton, Waai chaang, We maliang
C. ovoideus	Ma wewel, Sudu wewel, Thuda rena
C. oxleyanus	Manau riang, Rotan minyak, Wai-dam
C. palustris	Rotan buku hitam, Rotan pasir, Rotan sega beruang, Rotan teling, Waai khring
C. pandanosmus	Kehes
C. paspalanthus	Lempinit tingkau, Rotan sirikis, Wi lohong, Wi singkau
C. pedicellatus	Samole
C. perakensis	Rotan dudok
C. peregrinus	Nguay
C. pilosellus	Ilem, Kehes murah, Pakoe, Rotan lintang, Wi labu
C. platyacanthus	Wai namleuang
C. pogonocanthus	Rotan murah, Semoleh membatong, Semoleh timaitong, Uwai taut, Wi pale,
C pailmai	Wi tut Wai thoon
C. poilanei	
C. polystachys	Howe gelang, Rotan sabong, Rotan sabung, Wai lau cincin
C. pseudorivalis	China bet
C. pseudoulur	Wi tapah
C. ramulosus	Panlis C. I'I
C. reyesianus	Apas, Lukuan, Samulid
C. rhabdocladus	Wai wan
C. rhytidomus	Kehes, Rotan sega
C. rotang	Perambu
C. rudentum	Wai boun

Genus/Species	Vernacular names	
C. ruvidus	Wee lumbak	
C. scabridulus	Dara panda, Rotan kerai, Rotan kikir	
C. scipionum	Rotan semambu, Tuwu, Waai maithao	
C. sedens	Rotan dudok	
C. semoi	Wi semoi, Wi tut	
C. siamensis	Wai khom	
C. simplex	Rotan kerai gunung	
C. simplicifolius	Danye shengteng	
C. siphonospathus	Dagdag, Palimanok, Talola	
C. solitarius	Wai thork	
C. spinifolius	Kurakling	
C. subinermis	Mangkawayan, Rotan batu, Rotan tunggal	
C. symphysipus	Laru, Palanog, Pondos embel, Rotan ombol, Uwe sangkayu-kayu	
C. tenuis	Jati bet	
C. tetradactylus	Baiteng, White rattan	
C. thwaitesii	Pannichural	
C. tomentosus	Rotan air, Rotan tahi ayam, Rotan tukas	
C. trachycoleus	Jehab, Rotan irit	
C. tracnycoleus C. travancoricus	Arichural	
C. tumidus	Rotan manau buku hitam, Rotan manau tikus	
C. unifarius	Rotan cacing, Rotan patis, Rotan wuluh, Wai sideken	
C. usitatus	Babuyan, Hanapas, Tandulang-parang	
C. vidalianus	Butarak	
C. viminalis	Bara bet, Boro bet, Padao, Penjalin cacing, Rotan cacing, Wai mon, Wai sam bat taw, Wai som	
C. wailong	Da-teng, Wailong	
C. zollingeri	Pondos batang, Rotan air, Rotan batang	
Calospatha scortechinii	Rotan demuk	
Ceratolobus concolor	Pelus tulukn, Pulut merah, Timai	
C. subangulatus	Inai, Pelus beland, Pelus djengan, Pulut merah	
Daemonorops angustifolia	Air, Rotan getah, Rotan minyak, Wai-nam	
D. calicarpa	Lumpit	
D. crinita	Jepung, Pulut merah	
D. curranii	Pitpit, Saranoi	
D. didymophylla	Rotan tunggal, Udat, Uwi jernang kecil, Wai-khipet, Wi darum, Wi jerenang	
D. draco	Rotan jergang, Rotan jernang, Wi ondo	
D. elongata	Lempinit pahetan, Rotan bangkorn, Rotan pipit	
D. fissa	Air, Bala mata, Gonot pipit, Rotan bejungan, Rotan damp, Rotan kotok, Wi ruak ai	
D. grandis	Rotan sendang, Wai-chak	
D. hystrix	Rotan sepet, Rotan tahi landak, Sintang, Uwi kalang, Wae dangah, Wi duduk	
D. ingens	Keplar, Wi darum, Wi seruing	
D. jenkinsiana	Golak bet, Hongteng, Huangteng, Red rattan, Yellow rattan	
	Sanka beth	
D. kurzianus		
D. kurzianus D. lamprolepis		
D. lamprolepis	Lapa, Latea	
D. lamprolepis D. leptopus	Lapa, Latea Rotan bacap	
D. lamprolepis	Lapa, Latea	

Genus/Species	Vernacular names		
D. oblonga	Rotan pitik, Rotan poprok		
D. ochrolepis	Ditaan, Palaklakanin sumulid		
D. periacantha	Rotan belubu, Uwai lambat, Wi empunoh, Wi empunok		
D. propingua	Rotan jernang		
D. robusta	Batang merah, Rotan bulu rusa, Rotan susu		
D. rubra	Teretes		
D. ruptilis	Wi dudok		
D. sabut	Bioengan, Jungan, Rotan murah, Rotan sabut, Seringan, Toan pekat, Waai phon khon non, Wi lepoh		
D. scapigera	Wi empunok ruai		
D. schmidtiana	Wai-somm		
D. sparsiflora	Savit asaq, Wi ruah air		
Desmoncus cirrhiferus	Matamba		
D. giganteus	Jacitara, Vara casha		
D. mitis	Barahuasca, Jacitara		
D. orthacanthos	Jacitara		
D. polyacanthos	Jacitara		
Eremospatha macrocarpa	Kodi, Nlong		
Korthalsia cheb	Keb, Sanam, Rotan merah, Wee jematang tengan		
K. echinometra	Be'ang, Me'a, Rotan dahan, Rotan meiya, Rotan merah, Uwi hurang		
K. ferox	Ain, Danan, Rotan merah		
K. flagellaris	Rotan dahan, Rotan merah		
K. furtadoana	Botet, Lalun		
K. laciniosa	Rotan dahan		
K. rigida	Rotan dahan, Rotan merah		
K. robusta	Lasas, Rotan asas		
K. rostrata	Botet, Lalun djengan, Rotan semut, Rotan udang		
Laccosperma robustum	Nkan		
L. secundiflorum	Makak, Nkan		
Myrialepis paradoxa	Cekolo, Rotan kertong, Waai kung		
Plectocomia elongata	Mantang		
P. himalayana	Tehri bet		
Plectocomiopsis geminiflora	Ambalua, Moa, Rotan rilang, Rotan rua, Rotan sotong, Wai-kungnampharai, Wi embalua, Wi laleh		
Retispatha dumetosa	Uwai belalong		

Appendix I

CLASSIFICATION OF PALM FAMILY (PALMAE¹) RATTAN **GENERA**

Subfamilies	Calamoideae ²	Calamoideae	Calamoideae	Calamoideae	Arecoideae
Tribes	Calameae	Calameae	Calameae	Lepidocaryeae	Cocoeae
Subtribes	Calaminae	Korthalsiinae	Plectocomiinae	Ancistrophyllinae6	Bactridinae
Genera	Calamus³ Calospatha Ceratolobus Daemonorops Pogonotium Retispatha	Korthalsia ⁴	Myrialepis ⁵ Plectocomia Plectocomiopsis	Eremospatha Laccosperma ⁷ Oncocalamus	Desmoncus ⁸

¹ Alternate name Arecaceae

Source: Baker, Dransfield and Hedderson, 2000; Uhl & Dransfield, 1999.

² Syn. Lepidocaryoideae

³ Syn. Cornera, Palmijuncus, Rotang, Rotanga, Schizospatha, Zalaccella ⁴ Syn. Calamosagus

⁵ Syn. Bejaudia
⁶ Syn. Oncocalaminae (was separate from Ancistrophyllinae now submerged into former, hence not a synonym as such)

⁷ Syn. Ancistrophyllum, Neoancistrophyllum

Appendix II

RATTAN GENERA, SPECIES AND GEOGRAPHIC DISTRIBUTION

Genus	Number of species	Geographic distribution
Calamus L. (Latin – a cane or reed)	370-400	Equatorial Africa, India, southern China, south to Australia and the western Pacific
Calospatha Becc. (Greek – beautiful bract)	1	Peninsular Malaysia
Ceratolobus Bl. (Greek – horned capsule)	6	Peninsular Malaysia, Sumatra, Borneo, Java
Daemonorops Bl. (Greek – demon bush).	115	India, southern China, south through Malay Archipelago to western New Guinea
Desmoncus Mart. (Greek – banded hooks)	~ 7	Southern Mexico to southern Brazil and Bolivia
Eremospatha (Mann & Wendl.) Wendl. (Latin – spatheless)	11 (one new species recently described; another new species in press	Humid tropical West Africa and into Congo Basin
Korthalsia Bl. (P.W. Korthals 1807–1892, Dutch botanist).	~ 26	Indochina and Myanmar to New Guinea
Laccosperma (G. Mann & H. Wendl.) Drude (Latin – hole-in-the-seed)	6 (another new species in press)	Humid tropical West, Southern and East Africa
Myrialepis Becc. (Greek – countless scales)	1	Indo-China, Thailand, Myanmar, Peninsular Malaysia and Sumatra
Oncocalamus (G. Mann & H. Wendl.) H. Wendl. Hooker (Latin – hooked cane)	4 (one new species recently described)	Humid tropical Africa: SE Nigeria west and south to Cameroon, Gabon, Equatorial Guinea and northern Congo
Plectocomia Mart. ex Bl. (Greek – plaited hair)	~ 16	Himalayas and southern China to western Malesia
Plectocomiopsis Becc. (like Plectocomia)	5	Thailand, Peninsular Malaysia, Sumatra, Borneo, Lao PDR
Pogonotium J. Dransf. (Greek - bearded ears, referring to the auricles)	3	Peninsular Malaysia and Borneo
Retispatha J. Dransf. (Latin – net-like bracts)	1	Borneo

Source: Uhl & Dransfield, 1987; Dransfield, 1992.

Appendix III

UTILIZED CALAMUS SPECIES

Species	Utilization notes	
Calamus acanthospathus Griff.	Canes for bridge cables, basketry	
C. andamanicus Kurz	Excellent large-diameter canes harvested for furniture industry; leaves for thatching	
C. aruensis Becc.	Excellent quality medium- to large-diameter canes for furniture	
C. arugda Becc.	Entire canes for handicrafts, furniture, basketry, etc., local and export markets	
C. axillaris Becc.	Small-diameter canes for basketry, fish traps and tying	
C. bacularis Becc.	Canes for walking-sticks	
C. bicolor Becc.	Ornamental use of young plants	
C. blumei Becc.	Canes of good quality but quantities insufficient for commercial use; canes for baskets and mats	
C. boniensis Becc. ex Heyne	Probably sold together with other small-diameter canes	
C. burckianus Becc.	Canes for broom handles	
C. caesius Bl.	Canes for commercial and traditional uses	
C. castaneus Becc.	Leaves for thatch; immature fruits in traditional medicine	
C. ciliaris Bl.	Slender canes for weaving and binding; seedlings used as ornamentals	
C. conirostris Becc.	Canes of poor quality, rarely used; fruit eaten	
C. convallium J. Dransf.	Canes	
C. cumingianus Becc.	Entire canes made into handicrafts, furniture and baskets	
C. deërratus G. Mann & H. Wendl.	Canes for construction and weaving	
C. densiflorus Becc.	Canes for making furniture and baskets	
C. didymocarpus Warb. ex Becc.	Canes inferior but used for local furniture-making	
C. diepenhorstii Miq.	Canes for tying, cordage, basketry, fish traps and noose traps	
C. dimorphacanthus Becc.	Canes used for baskets, bags, tying, etc. for home industries	
var. dimorphacanthus		
C. discolor Becc.	Young plants as ornamentals; canes for binding or tying	
C. egregius Burr.	Excellent small- to medium-diameter canes for binding and weaving in furniture; new shoots edible	
C. elmerianus Becc.	Canes for furniture, handicrafts and home industries	
C. erioacanthus Becc.	Canes of good quality	
C. exilis Griff.	Canes for binding, weaving, basketry, handicrafts	
C. flabellatus Becc.	Canes for tying, binding and weaving	
C. gamblei Becc.	Canes for furniture	
C. gibbsianus Becc.	Canes for tying and weaving	
C. gonospermus Becc.	Edible fruit	
C. gracilis Roxb	Canes for handicrafts	
C. grandifolius Becc.	Canes for furniture	
C. guruba (Buch-Ham) ex Mart.	Canes for basketry, chair seats	
C. halconensis (Becc.) Baja-Lapis	Canes for chair frames, cables for ferry boats, hauling logs and as rigging on small sailboats; split canes for mats, basketry, fish traps,	
var. dimorphacanthus Becc.	chair seats	
C. heteroideus Bl.	Canes for cordage	
C. hispidulus Becc.	Canes for weaving	
C. hookerianus Becc.	Canes for furniture, basketry	

Species	Utilization notes	
C. huegelianus Mart.	Canes for basketry, chair frames, etc	
C. inermis T. Anders.	Canes for police sticks, chair frames	
C. inops Becc. ex Heyne	Actual use of small- to medium-diameter canes not known	
C. insignis Becc.	Split canes for basketry, cordage; spiny leaf-sheaths as food graters	
C. javensis Bl.	Canes for cordage, basketry, noose traps, musical instruments; edible raw cabbage as medicine; spiny leaf-sheaths formerly used to make food graters	
C. koordersianus Becc.	Canes locally for basket frames	
C. laevigatus Mart.	Extensively collected as small-diameter cane, end-uses not documented	
C. latifolius Roxb.	Canes for basketry, walking-sticks, furniture frames; split canes for chair seats	
C. leiocaulis Becc. ex Heyne	Small-diameter canes extensively used to make furniture for local and export markets	
C. leptospadix Griff.	Canes for basketry and chair seats	
C. leptostachys Becc. ex Heyne	Excellent small-diameter canes for furniture and handicrafts for local and export markets	
C. longisetus Griff.	Coarse cane for furniture; leaves for thatch; edible fruit	
C. longispathus Ridl.	Young leaves occasionally as cigarette paper; fruits as medicine	
C. luridus Becc.	Canes split for tying and binding	
C. manan Miq.	Most desirable large-diameter canes for furniture	
C. manillensis (Mart.) H. Wendl.	Edible fruit; canes of inferior quality for tying	
C. marginatus (Bl.) Mart.	Poor quality but durable canes for basket frames and walking-sticks	
C. mattanensis Becc.	Canes occasionally used to make coarse baskets	
C. megaphyllus Becc.	Canes for basketry and tying	
C. melanorhynchus Becc.	Canes for basketry and handicrafts	
C. merrillii Becc.	Entire canes for chair frames, ferry boat cables, hauling logs, sailboat rigging; split canes for basketry, chairs, fish traps, etc	
C. microcarpus Becc.	Canes for basketry	
C. microsphaerion Becc.	Entire canes for basketry	
C. minahassae Becc.	Canes as cordage	
C. mindorensis Becc.	Popular large-diameter canes for furniture; split canes for basketry, cordage	
C. mitis Becc.	Canes for basketry and tying	
C. moseleyanus Becc.	Canes for furniture	
C. multinervis Becc.	Canes for furniture	
C. muricatus Becc.	Cabbage eaten	
C. myriacanthus Becc.	Canes for walking-sticks, cages, basket frames	
C. nagbettai Fernandez & Dey	Canes for basketry	
C. nambariensis Becc.	Canes for handicrafts	
C. optimus Becc.	Canes used to make mats, for weaving, to bind furniture and cordage	
C. ornatus Bl.	Major use of canes for furniture; also for walking-sticks, handles for implements and flooring; leaves, cabbage and roots as medicine; fruits occasionally eaten	
C. ovoideus Thwaites ex Trimen	Split canes for basketry; entire canes for furniture frames; split cane cores for crude woven products	
C. oxleyanus Teysm. & Binnend. ex Miq.	Canes for walking-sticks	
C. palustris Griff.	Canes excellent for furniture frames	
C. pandanosmus Furt.	Canes	
C. paspalanthus Becc.	Seedlings as potential ornamental; ripe fruit pickled and young shoot eaten	
C. pedicellatus Becc. ex Heyne	Canes apparently of good quality for furniture	
C. perakensis Becc.	Canes occasionally used for walking-sticks	

Species	Utilization notes	
C. peregrinus Furt.	Robust canes of good quality for furniture	
C. pilosellus Becc.	Canes of good appearance but probably only for local use	
C. pogonacanthus Becc. ex H. Winkler	Canes of good quality for tying, binding and making coarse mats	
C. poilanei Conrad	Canes for handicrafts	
C. polystachys Becc.	Coarse canes used for broom handles	
C. pseudorivalis Becc.	Canes for furniture	
C. pseudotenuis Becc.	Canes for basketry	
C. pseudoulur Becc.	Canes for basketry, etc.	
C. ramulosus Becc.	Canes for furniture	
C. reyesianus Becc.	Canes of small diameter use for furniture and basketry, local and international	
C. rhomboideus Bl.	Canes possibly used to make baskets and mats	
C. rhytidomus Becc.	Canes used locally for binding	
C. rotang Linn.	Canes for basketry, chair seats	
C. rudentum Lour.	Canes for handicrafts; edible fruit	
C. ruvidus Becc.	Canes used for basketry and tying	
C. scabridulus Becc.	Canes split for tying, thatching and cordage	
C. scipionum Lour.	Canes for making moderate-quality furniture; walking-sticks, umbrella handles, etc.	
C. sedens J. Dransf.	Canes sometimes used to make walking-sticks	
C. semoi Becc.	Excellent quality cane; under cultivation in gardens	
C. simplex Becc.	Canes for basketry	
C. simplicifolius Wei	Good medium-diameter cane for furniture, binding, weaving, basketry, etc; new shoots edible	
C. siphonospathus Mart.	Canes for basketry and tying	
C. solitarius T. Evans et al.	Canes for handicrafts	
C. spinifolius Becc.	Canes for basketry and tying	
C. subinermis H. Wendl.	Canes for furniture frames; cabbage cooked as a vegetable; fruit	
ex Becc.	sometimes eaten	
C. symphysipus Becc.	Canes for furniture	
C. tenuis Roxb.	Canes for basketry; fruits and young shoots eaten	
C. tetradactylus Hance	Small-diameter canes for handicrafts, basketry and furniture	
C. thwaitesii Becc.	Canes for furniture	
C. tomentosus Becc.	Canes for tying and binding	
C. trachycoleus Becc.	Canes used as skin peels for weaving chair seats and back; unsplit fo furniture; basketry, mats, fish traps, cordage	
C. travancoricus Bedd. ex Becc. & Hook	Canes for handicrafts and furniture	
C. trispermus Becc.	Canes for furniture	
C. tumidus Furt.	Canes for furniture	
C. ulur Becc.	Split canes for cordage	
C. unifarius H. Wendl.	Canes locally for furniture	
C. usitatus Becc.	Canes for basketry, furniture and handicrafts	
C. vidalianus Becc.	Canes for furniture	
C. viminalis Willd.	Canes locally for basketry and matting	
C. wailong S.J. Pei & S.Y. Chen	Canes for weaving and furniture	
C. warburgii K. Schum.	Canes locally for basket frames	
C. zollingeri Becc.	Canes for furniture frames	

Appendix IV

UTILIZED DAEMONOROPS SPECIES

Species	Utilization notes		
Daemonorops angustifolia (Griff.) Mart.	Canes for low-quality furniture, for coring and binding		
D. calicarpa (Griff.) Mart.	Leaves for thatching; outer part of rachis stripped for basketry		
D. clemensiana Becc.	Canes for basketry and tying		
D. crinita (Miq.) Bl.	Canes for coarse basketry and cordage		
D. curranii Becc.	Canes for basketry and tying		
D. didymophylla Becc.	Fruit yields red resin (dragon's blood); fruit sometimes eaten; canes used as split rattan		
D. draco (Willd.) Bl.	Fruit yields red resin (dragon's blood)		
D. elongata Bl.	Leaves for thatching		
D. fissa (Miq.) Bl.	Canes for local low-quality furniture; cabbage eaten		
D. grandis (Griff.) Mart.	Leaves for thatching; outer layer of petiole and rachis peeled and split for basketry; rachis for fishing rods		
D. hystrix (Griff.) Mart.	Canes for furniture frames, but of low quality; ripe fruits eaten		
D. ingens J. Dransf.	Fruit eaten; leaves for thatching		
D. jenkinsiana (Griff.) Mart.	Important medium-large diameter cane in China; canes for basketry and weaving; seeds made into necklaces; fresh shoots eaten as vegetable		
D. kurziana Becc.	Canes for furniture		
D. lamprolepis Becc.	Canes for binding material		
D. leptopus (Griff.) Mart.	Canes for basketry and tying; leaflets used locally as cigarette paper		
D. longispatha Becc.	Cabbage eaten; canes for tying		
D. melanochaetes Bl.	Cabbage eaten; cane core used for broom handles and coarse furniture		
D. micracantha (Griff.) Becc.	Canes split for tying; fruit source of red resin (dragon's blood)		
D. oblonga (Reinw. ex Bl.) Bl.	Canes for basket frames, brush handles and coarse weaving		
D. ochrolepis Becc.	Canes for furniture, baskets, bags, etc. for home industries and local commercial use		
D. periacantha Miq.	Canes split for sewing up fish traps; cabbage and fruit edible		
D. propinqua Becc.	Fruits yield red resin (dragon's blood)		
D. robusta Warb.	Canes used locally for furniture frames of moderate quality		
D. rubra (Reinw. ex Bl.) Bl.	Fruits yield red resin (dragon's blood)		
D. ruptilis Becc.	Fruits eaten		
D. sabut Becc.	Canes split for basketry, mats and tying; fruits yield red resin (dragon's blood)		
D. scapigera Becc.	Canes for walking sticks; fruits and cabbage eaten		
D. sparsiflora Becc.	Canes for tying; shoots eaten		

Appendix V

OTHER UTILIZED CANE SPECIES

Genus and species	Utilization notes	
Calospatha scortechinii Becc.	Ripe fruits eaten	
Ceratolobus concolor Bl.	Canes	
C. subangulatus (Miq.) Becc.	Canes	
Desmoncus cirrhiferus Gentry & Zandini	Basketry and fish traps; edible fruit	
D. giganteus Henderson	Various woven items	
D. mitis Kuntze	Basketry and tying house beams	
D. orthacanthos Mart.	Basketry	
D. polyacanthos Mart.	Basketry, sieves and for tying	
Eremospatha haullevilleana De Wild E. macrocarpa (G. Mann & H. Wendl.) H.Wendl.	Chewing sticks (native toothbrush) and cane rope	
Korthalsia cheb Becc.	Canes	
K. echinometra Becc.	Basketry	
K. ferox Becc.	Canes	
K. flagellaris Miq.	Canes	
K. furtadoana J. Dransf.	Canes	
K. rigida Bl.	Canes	
K. rostrata Bl.	Binding, handicrafts	
Laccosperma robustum (Burr.) J. Dransf. L. secundiflorum (P. Beauv.) Küntze	Walking sticks, furniture frames, basket frames and cane rope	
Myrialepis paradoxa (Kurz) J. Dransf.	Coarse basketry	
Oncocalamus mannii	Cane rope	
(G. Mann & H. Wendl.) H. Wendl.		
Plectocomia himalayana Griff.	Canes for tying and basketry	
Plectocomiopsis geminiflora (Griff.) Becc.	Coarse basketry, cordage, fish traps and chicken coops; heart edible though bitter	

Note: no local use is recorded for the genera Pogonotium or Retispatha.

Appendix VI

PHILIPPINE STANDARD SPECIFICATIONS FOR RATTAN AND WICKER FURNITURE

This standard specification is hereby promulgated under a fixed designation, PS (Philippine Standard) No. 821-09.03; 1976.

This standard was prepared by the Technical Committee on Furniture and Fixtures with the full cooperation of the Chamber of Furniture Industries of the Philippines.

Suggestions for revision should be addressed to the Philippines Bureau of Standards, PO Box 3719, Manila.

1. Scope

1.1 This standard specifies requirements for rattan and wicker furniture.

2. Definition

2.1 For the purpose of this standard, the following definitions shall apply:

(a) Rattan Poles. A common term that applies to the various species of tropical climbing palms

composing the genera Calamus and Daemonorops of the family Palmae.

(b) Rattan Round Core. Sometimes called "wicker", refers to round-shaped material, with size ranging from 2 to 10 mm in diameter, processed from the core of the rattan pole, usually used for weaving.

(c) Rattan Flat Core. Refers to the flat-shaped material, with size ranging from 2 to 10 mm in

width, processed from the core of a pole and used for weaving and binding.

(d) Rattan Peel. Also "rattan split". refers to flat-shaped material, stripped from the skin of a rattan pole, with size ranging from 2 to 10 mm or wider in width, usually for weaving and binding.

(e) Check. A separation of fibres along the pole forming a crack or fissure in the rattan, not

extending through the piece from one surface to the other.

(f) Shake. A separation of the fibres along the pole, caused by stress developed in the gathering and cutting, or due to improper processing.

(g) Break. A separation of the fibres, which extends through a piece from one surface to the

other usually perpendicular or at right angle to the directions of the grains.

(h) Blemishes. Dark spots or discolorations in rattan poles caused by staining fungi or mineral stains.

3. Material requirements

3.1 Rattan Poles. The rattan used in the construction of furniture shall be the "palasan" or similar variety and shall be of good grade poles: mature, clean, scraped, thoroughly seasoned.

- (a) Rattan poles used for local and export market shall be treated against fungi and insect infestations, and thus free from mineral and fungal blemishes, scar, bruise and specially pinholes.
- (b) All poles are to be treated with pentachlorophenol or saline solution to safeguard against insect-borers.
- (c) Checks, Shakes and Breaks. Checks and shakes shall be permitted provided that they do not exist in close proximity to holes and grooves as to affect the strength. Breaks, however, shall not be permitted;

- 3.2 Rattan Core and Peel. The rattan core and peel used for weaving and binding furniture shall be of good quality processed from grade rattan poles preferably of the "sika" variety. Rattan core or peel used shall be of uniform diameter or width respectively.
- 3.3 Wood. All wood materials used or incorporated into rattan furniture such as seat frames, doors, cabinet, etc. shall conform to PS Specification for Wooden Furniture, Section 3.

4. Construction

- 4.1 All furniture complying with this standard shall be of good workmanship and all components including those not specifically referred to in this standard such as materials used in constructing the metal and wooden parts, springs, cushions, upholstery shall be of a quality at least equal to that used in recognized good practices in the trade.
 - (a) Rattan joints for main members and stress joints shall be snugly fitted and secured to adjoin members by nails, screw or bolts, and bound with rattan flat peel or core, or other binding materials glued on to the rattan, so as to withstand normal daily wear and tear.
 - (b) All main members and stress joints shall be of the concave-cut fitted type or dowelled type of construction.
 - (c) All joints of rattan rings used for the seats or for support purposes shall be the half-lap type nailed and glued together.
 - (d) All wood jointings shall follow the PS Specification for Wooden Furniture, Section 4.

5. Finish

- 5.1 All rattan and wood surfaces shall be sanded smooth and all exposed edges and corners shall be eased. All holes, checks and shakes shall be filled and stained or toned to match color of rattan parts. Exposed nails, screws and bolts shall be countersunk with the holes with plastic wood fillers and/or wooden or rattan plugs flushed and sanded smooth before finishing.
- 5.2 Furniture finish shall be in accordance with any of the following:
 - (a) lacquer or nitro-based clear finishes;
 - (b) cellulose acetate butyrate (CAB);
 - (c) acid catalyst clear lacquers;
 - (d) polyurethane;
 - (e) oil or wax;
 - (f) polyester.
- 5.3 All materials used for juvenile furniture shall be of the nontoxic type.
- 5.4 All polished, painted or otherwise finished surfaces shall be of good workmanship and brought to a durable finish.
- 5.5 There shall be no excessive stickiness or surface disfigurement of any type such as blistering, marking or change of color when the furniture is subjected to dry heat. (See Specification for Wooden Furniture PS 821-01.09; 1976).

6. Sampling

6.1 Up to three [pieces of] furniture shall be selected at random for testing. Should one of these fail to pass the tests, the inspector may select as many additional [pieces of] furniture as are necessary within reasonable limits, to satisfy himself of the manufacturer's normal standards of production.

7. Performance tests

- 7.1 The main objective of these series of tests is to determine, by the application of simulated loads and related stresses, whether a given manufacturer's products, specifically load-bearing members and joints hereof, can reasonably withstand normal use.
 - (a) The manner of testing herein described represents the most simple procedure that has been found workable in a majority of furniture, especially chairs. There will, however, be cases in which the design precludes the use of this particular procedure. In such cases, the

tests to which the furniture are to be submitted shall be derived from the same principle as the standard test, using other means of applying either the same load or loads that have a similar effect.

7.2 Inspection before testing

(a) Immediately before testing, each sample shall be inspected and any apparent defects noted, so that they shall not later be recorded as having been caused by the tests. A report on such defects shall accompany the report on the performance tests and these shall be taken into account in assessing whether the article has complied with the requirements of this standard.

7.3 Test procedure

- (a) Each sample shall be subjected to the series of tests specified in Section 7.4, the tests being carried out in that sequence.
- (b) If during or after any of the tests described in 7.4 relative movement is apparent between the members of any joint and it is established that the joint is broken in such a way as to impair its serviceability, the furniture shall be deemed to have failed to pass the performance tests.
- (c)I f failure of a joint is recorded, or if for any other reason the furniture selected for testing is deemed to have failed to pass the Performance Tests of this standard, the testing of that article shall be discontinued and no further sections of the test procedure shall be applied to it.
- (d) If any of the tests specified in 7.4 would cause local damage or is inappropriate for any other reason, it shall be replaced by a test or tests based on the same principle (see 7.1).

7.1 Tests

- (a) Test Samples. Samples selected at random in accordance with 6.1 shall be tested as specified herein.
- (b) Level Test (all items). Casters or glides shall be removed. Items shall be placed on a flat level surface plate. All legs shall simultaneously rest on the surface plate. Any evidence of rocking when light force is applied at any corner shall be cause for rejection.
- (c) Sand Bag Test (chairs and sofa frames). These items shall withstand six impacts of a 29.5 kg (65 pounds) sand bag, 30.48 cm (12 inches) in diameter at dropped end, a distance of 106.68 cm (3.5 feet) in each of the following locations: (a) directly over a leg, (b) midway between the legs on the side frame members and (c) on front frame rail at midpoint.
- (d) Impact Test. Chairs shall withstand 12 drops from a height of 91.44 cm (3 feet) above a concrete floor. The chair shall be tilted to an angle of 12 degrees diagonally across the plane of the feet to insure that one leg receives the initial impact.
- (e) Diagonal Load Test. Chair shall be laid back in such a way that the front edge of the seat is directly above the feet or the rear legs. Apply a vertical load of 68.04 kg (150 pounds) to the front edge of the seat. The force shall be applied and completely removed steadily during periods of not less than 5 seconds for 20 times.
- (f) Static Load Test (chair frame with deck). A static load of a 68.04 kg (150 pounds) sand bag shall be applied vertically over a 30.48 cm (12 inches) diameter area in the center of the deck and allowed to remain for 15 minutes. Upon removal of the load, there shall be no evidence of breakage or loosening or separation of frame joints;
- (g) Static Load Test (tables). The height of the table shall be measured accurately. A static load of 45.36 kg (100 pounds) shall be applied vertically over a 30.48 cm (12 inches) diameter area in the centre of the table top and allowed to remain for 30 minutes. Upon removal of the load, the height shall not have decreased by more than 0.31 cm (1/8 inch) and there shall be no evidence of breakage or separation of joints.

7.5 Criteria for success

(a) No part of the furniture or its components or fittings shall develop any fracture, or any apparent loosening of a joint intended to be rigid, or any deformations which would adversely affect any of its functions.

- (b) Each sample tested shall fulfill the conditions of the test described in 7.3 (b).
- (c) Each sample tested shall sustain each of the forces described in 7.4.

8. Marking

8.1 Each furniture complying with this standard shall be marked with the PS Certification mark.

Note: The use of the PS Certification Mark is governed by the provisions of Standards Administrative Order No. 20, series of 1968, "Rules and Regulations for the Marking of Goods Standardized by the Bureau of Standards and for Other Purposes." This mark on a product/ producer is a guarantee that the product is in conformity with the standard. Details of conditions under which a licence to use the PS Certification Mark may be granted are obtainable from the Bureau of Standards, PO Box 3719, Manila.

Appendix VII

A CHRONOLOGY OF MAJOR RATTAN MEETINGS (WITH PROCEEDINGS REFERENCES IF PUBLISHED)

- 2000. 5–7 December. Rome, Italy. Rattan Development: FAO Expert Consultation organized in collaboration with INBAR (FAO, 2001a; 2002).
- 2000. 12-22 April. Hainan and Yunnan, China. GTZ/INBAR International Workshop on Bamboo and Rattan. (Zhu, 2001)
- 2000. 1–3 February. Cameroon. The International Rattan Workshop, Limbe Botanic Garden funded by CARPE (Sunderland and Profizi, 2003).
- 1999. April. Beijing. INBAR Bamboo and Rattan in Member Countries Workshop.
- 1998. 12-14 May. Kuala Lumpur, Malaysia. Rattan Cultivation: Achievements, Problems and Prospects. An International Consultation of Experts for the Project: Conservation, Genetic Improvement, and Silviculture of Rattans in South-East Asia (Bacilieri and Appanah, 1999).
- 1996. 14–26 April. Kuching, Sarawak and Luasong, Sabah. Rattan Taxonomy, Ecology, Silviculture, Conservation, Genetic Improvement and Biotechnology. Training Courses cum Workshops (Rao and Ramanatha Rao, 1997).
- 1995. 28–30 November. Jogjakarta, Indonesia; April 26-29. Serpong, Indonesia. Bamboo and Rattan Genetic Resources and Use. Second INBAR-IPGRI Biodiversity, Genetic Resources and Conservation Working Group Meeting; Workshop Meeting on Rattan Resources and their Development in Indonesia (Ramanatha Rao and Rao, 1996).
- 1995. 24-25 August. Manila, Philippines. Third National Rattan Conference (ATI, 1995).
- 1995. 8-11 May. Los Baños, Philippines. Expert Consultation on Genetic Enhancement of Bamboo and Rattan (Williams, Ramanuja Rao and Rao, 1995).
- 1995. 27–28 March. Kepong, Selangor, Malaysia. International Meeting of Experts on Inventory Techniques and Assessment of Rattan and Bamboo in Tropical Forests (Williams, Noor and Ramanuja Rao, 1999).
- 1994. 7–9 November. Singapore. Bamboo and Rattan Genetic Resources and Use. First INBAR Biodiversity, Genetic Resources and Conservation Working Group Meeting (Ramanatha Rao and Rao, 1995).
- 1994. 9–13 May. Bangalore, India. Consultation on Constraints to Production of Bamboo and Rattan (INBAR, 1994a).
- 1994. 23–25 February. Serdang, Selangor, Malaysia. Consultative Meeting on Methodologies for Trials of Bamboo and Rattan (INBAR, 1994b).
- 1993. 6–9 December. Dehra Dun, India. Consultative Meeting on Priority Species of Bamboo and Rattan (Williams and Ramanatha Rao, 1994).
- 1992. 29-31 January. Trichur, India. Rattan Management and Utilisation: Rattan (Cane) Seminar India (Chand Basha and Bhat, 1993).
- 1991. 22-26 July. Lae, Papua New Guinea. National Rattan Workshop. (Konabe and Sastry, 1991).
- 1989. 6-17 March. Jakarta, Indonesia. Workshop on Design and Manufacture of Bamboo and Rattan Furniture, Asia Pacific Region (FAO, 1990).
- 1988. 1–3 June. Cebu City, Philippines. National Symposium/Workshop on Rattan (PCARRD, 1990).
- 1987. 12-14 November. Chiangmai, Thailand. Recent Research on Rattans: International Rattan Seminar. (Rao and Vongkaluang, 1989).

- 1987. 19–22 January. Kota Kinabalu, Sabah, Malaysia. Colloquium on Rattan Propagation (Dhanarajan and Manokaran, 1988).
- 1984. 2-4 October. Kuala Lumpur, Malaysia. Rattan Seminar (Wong and Manokaran, 1985).
- 1979. 4-6 June. Singapore. Rattan Workshop (IDRC, 1980).

BIBLIOGRAPHY

- Adamson, J. 1993. American wicker: woven furniture from 1850 to 1930. New York, Rizzoli.
- Akademika, Journal of Social Science and Humanities. 1996. Orang Asli Social Life and Development N° 48 (special issue: six of seven articles on some aspect of rattan).
- Alam, M.K. 1990. Rattans of Bangladesh. Chittagong, Bangladesh Forest Research Institute.
- Alth, M. & Alth, C. 1979. Rattan furniture: a home craftsman's guide. New York, Hawthorn Books.
- Amatya, S.M. 1997. The rattans of Nepal. Kathmandu, IUCN Nepal.
- ATI. 1995. Proceedings of the third national rattan conference: 24-25 August 1995. Manila, Appropriate Technology International.
- Bacilieri, R. & Appanah, S. eds. 1999. Rattan cultivation: achievements, problems and prospects. Montpellier, France, CIRAD-Forêt.
- Bahadur, M. 1994. Cane & bamboo crafts of Manipur. Imphal, India, Mutua Museum-
- Baker, W.J., Dransfield, J. & Hedderson, T.A. 2000. Phylogeny, character evolution, and a new classification of the Calamoid palms. Systematic Botany, 25(2): 297-322.
- Basu, S.K. 1992. Rattans (canes) in India: a monographic revision. Kepong, Malaysia, Rattan Information Centre.
- Belcher, B.M. 1999. The bamboo and rattan sectors in Asia: an analysis of production-to-consumption systems. Working Paper N° 22. Beijing, INBAR.
- Bhat, K.M. 1991. A guide to an understanding of rattan structure and behaviour. Kepong, Malaysia, Rattan Information Centre.
- Bhat, K.M. 1992. Structure and properties of south Indian rattans. Peechi, India, Kerala Forest Research Institute.
- Bhat, K.M. 1996. Grading rules for rattan. Working Paper N° 6. New Delhi, INBAR.
- Blehaut, J-F. c1995. Iban baskets. Kuching, Malaysia, Sarawak Literary Society.
- Burkill, I.H. 1966. A dictionary of the economic products of the Malay Peninsula. Kuala Lumpur: Ministry of Agriculture and Cooperatives.
- Chand Basha, S. & Bhat, K.M. eds. 1993. Rattan management and utilisation. Peechi, India, Kerala Forest Research Institute.
- Cody, D.P. 1983. Manual on the production of rattan furniture. New York, United Nations Industrial Development Organization.
- De Zoysa, N. & Vivekanandan, K. 1991. The bamboo and rattan cottage industry in Sri Lanka. Battaramulla, Sri Lanka Forest Department.
- De Zoysa, N. & Vivekanandan, K. 1994. Rattans of Sri Lanka. Battaramulla, Sri Lanka Forest Department.
- Dhanarajan, G. & Manokaran, N. eds. 1988. Proceedings of the colloquium on rattan propagation. 19–22 January 1987, Kota Kinabalu, Sabah, Malaysia. RIC Occasional Paper N° 5. Kepong, Malaysia, Rattan Information Centre.
- Dransfield, J. 1979. A manual of the rattans of the Malay Peninsula. Kuala Lumpur: Forest Department.
- **Dransfield, J.** 1981. The biology of Asiatic rattans in relation to the rattan trade and conservation. *In H. Synge, ed. The biological aspects of rare plant conservation,* pp. 179–186. London, John Wiley.
- Dransfield, J. 1984. The rattans of Sabah. Sabah Forest Record N° 13. Sabah, Forest Department.
- Dransfield, J. 1992. The rattans of Sarawak. Richmond, Royal Botanic Gardens.
- Dransfield, J. 1997. The rattans of Brunei Darussalam. Brunei Darussalam, Ministry of Industry and Primary Resources.
- Dransfield, J. & Beentje, H. 1996. Lexicon palmarum. Marly-le-Roi, France, Editions Champflour.
- Dransfield, J. & Manokaran, N. eds. 1993. Plant resources of south-east Asia. 6. Rattans. Wageningen, the Netherlands, Pudoc.

Dunsmore, S. 1983. Sepak raga (takraw): the South East Asian ball game. Occasional Paper N° 4. Kuching, Sarawak Museum.

Duraiappah, A.K. 1994. A state of the art review on the socio-economics of the bamboo and rattan sector in Southeast Asia. Working Paper N° 1. New Delhi, INBAR.

Evans, T.D., Sengdala, K., Viengkham, O.V. & Thammavong, B. 2001. A field guide to the rattans of Lao P.R. Kew, UK, Royal Botanic Gardens.

FAO. 1990. Proceedings: a workshop on design and manufacture of bamboo and rattan furniture, Asia Pacific Region. Jakarta, Indonesia, 6-17 March 1989. Field Document N°17. Kuala Lumpur, FAO.

FAO. 2001a. Rattan development report: FAO expert consultation. Rome.

FAO. 2001b. Rattan. Special issue of Unasylva, 52(205).

FAO. 2002. Rattan. Current research issues and prospects for conservation and sustainable development. Non-Wood Forest Products 14. Rome.

Gnanaharan, R. & Mosteiro, A.P. 1997. Local tools, equipment and technologies for processing bamboo & rattan. Technical Report N° 9. New Delhi, INBAR.

Henderson, A. Galeano, G. & Bernal, R. 1995. Field guide to the palms of the Americas. Princeton, USA, Princeton University Press.

Hodel, D.R. ed. 1998. The palms and cycads of Thailand. Thailand, Nong Nooch Tropical Garden.

IDRC. 1980. Rattan: a report of a workshop held in Singapore, 4-6 June 1979. Ottawa, International Development Research Centre.

IDRC. 1988. Final report: rattan Indonesia project 1984-1988. Jakarta, IDRC-Canada and Department of Forestry.

INBAR. 1994a. Constraints to production of bamboo and rattan. Technical Report N° 5. New Delhi,INBAR.

INBAR. 1994b. Methodologies for trials of bamboo and rattan. Technical Report N° 4. New Delhi,INBAR.

INBAR. 1999. Socio-economic issues and constraints in the bamboo and rattan sectors: INBAR's assessment. Working Paper N° 23. Beijing, INBAR.

INBAR Newsletter/Newsmagazine. 1993+. New Delhi/Beijing, International Centre for Bamboo and Rattan.

Jones, D.L. 1995. Palms throughout the world. Washington, DC, Smithsonian Institution Press.

Journal of Bamboo and Rattan. 2001+. The Netherlands, Eindhoven University.

Kirkup, D., Dransfield, J. & Sanderson, H. 1999. The rattans of Brunei Darussalam - interactive key on CD-ROM Brunei Darussalam, Ministry of Industry and Primary Resources.

Konabe, C. & Sastry, C.B. eds. 1991. Proceedings of national rattan workshop. 22-26 July, 1991. Lae, Papua New Guinea, Forest Research Institute.

Kong-Ong, H.K. & Manokaran, N. 1986. Rattan: a bibliography. Kepong, Malaysia, Rattan Information Centre.

Lakshmana, A.C. 1993. Rattans of South India. Bangalore, India, Evergreen Publishers.

Lane, R.F. 1986. Philippine basketry. Manila, Bookmark.

Madulid, D.A. 1981. A monograph of *Plectocomia* (*Palmae: Lepidocaryoideae*). Kalikasan – The *Philippine Journal of Biology.* 10(1): 1–94.

Maki, M. 1986. Rattan work with complete diagrams. Tokyo, Ondorisha.

Malayan Naturalist. 1989. Conservation and utilization of Malaysian palms (special issue), Vol. 43, Nos. 1&2.

Manokaran, N. 1984. Indonesian rattans: cultivation, production and trade. RIC Occasional Paper N° 2. Kepong, Malaysia, Rattan Information Centre.

Manokaran, N. 1990. The state of the rattan and bamboo trade. RIC Occasional Paper N° 7. Kepong, Malaysia, Rattan Information Centre.

McGuire Rattan with Rawhide Furniture Catalogue. 1985. San Francisco, The McGuire Company.

Mohmod, A.L. & Mohamad, S. 1989. The rattan industries of Peninsular Malaysia. RIC Occasional Paper N° 6. Kepong, Malaysia, Rattan Information Centre.

Morakinyo, A.B. 1995. Profiles and Pan-African distributions of the rattan species (Calamoideae)

- recorded in Nigeria. Principes, 39(4): 197-209.
- Nasendi, B.D. 1994. Socio-economic information on rattan in Indonesia. Working Paper N° 2. New Delhi, INBAR.
- Negi, S.S. 1996. Bamboos and canes. Dehra Dun, India, Bishen Singh Mahendra Pal Singh.
- Othman, M.S.H. & Bajau, F.E. 1987. The profile of the Bumiputra rattan furniture manufacturing industry in Peninsular Malaysia. RIC Occasional Paper N° 4. Kepong, Malaysia Rattan Information Centre.
- PCARRD. 1985. The Philippines recommends for rattan. Technical Bulletin Series N° 55. Los Baños, Philippine Council for Agriculture, Forestry and Natural Resources Research and Development.
- PCARRD. 1990. Rattan proceedings of the national symposium/workshop on rattan. Los Baños, Philippine Council for Agriculture, Forestry and Natural Resources Research and Development.
- PCARRD. 1992a. Seed technology and nursery techniques. Rattan How-To Series N° 1. Los Baños, Philippine Council for Agriculture, Forestry and Natural Resources Research and Development.
- PCARRD. 1992b. Plantation establishment, maintenance, and harvesting. Rattan How-To Series N° 2. Los Baños, Philippine Council for Agriculture, Forestry and Natural Resources Research and Development.
- PCARRD. 1992c. Chemical treatment, drying, and seasoning of rattan poles. Rattan How-To Series N° 3. Los Baños, Philippine Council for Agriculture, Forestry and Natural Resources Research and Development.
- PCARRD. 1992d. Rattan manufacturing technologies. Rattan How-To Series N° 4. Los Baños, Philippine Council for Agriculture, Forestry and Natural Resources Research and Development.
- Ramanuja Rao, I.V., Yusoff, A.M., Rao, A.N. & Sastry, C.B. 1990. Propagation of bamboo and rattan through tissue culture. Singapore, IDRC.
- Ramanatha Rao, V. & Rao, A.N. eds. 1995. Bamboo and rattan genetic resources and use. Proceedings of the first INBAR biodiversity, genetic resources and conservation working group. 7–9 November 1994, Singapore. Rome, IPGRI.
- Ramanatha Rao, V. & Rao, A.N. eds. 1996. Bamboo and rattan genetic resources and use. Proceedings of the second INBAR-IPGRI biodiversity, genetic resources and conservation working group meeting 28-30 November 1995, Jogjakarta, Indonesia, and report of the workshop meeting on rattan resources and their development in Indonesia, 26-29 April 1995, Serpong, Indonesia. Rome, IPGRI
- Rao, A.N. & Ramanatha Rao, V. eds. 1997. Rattan taxonomy, ecology, silviculture, conservation, genetic improvement and biotechnology: proceedings of training courses cum workshops, Sarawak, Sabah, 14–26 April 1996. Serdang, Malaysia, IPGRI-APO.
- Rao, A.N. & Vongkaluang, I. eds. 1989. Recent research on rattans. Bangkok, Faculty of Forestry, Kasetsart University.
- Rattan Information Centre (RIC) Bulletin. 1982-1993. Kepong, Malaysia, Rattan Information Centre.
- Renuka, C. 1992. Rattans of the Western Ghats: a taxonomic manual. Peechi, India, Kerala Forest Research Institute.
- Renuka, C. 1995. A manual of the rattans of Andaman and Nicobar islands. Peechi, India, Kerala Forest Research Institute.
- Renuka, C. 2000. Field identification key for rattans of Kerala. Peechi, India, Kerala Forest Research Institute.
- Renuka, C., Bhat, K.M. & Nambiar, V.P.K. 1987. Morphological, anatomical and physical properties of Calamus species of Kerala forests. Peechi, India, Kerala Forest Research Institute.
- Renuka, C., Indira, E.P. & Muralidharan, E.M. 1998. Genetric diversity and conservation of certain species of rattans in Andaman and Nicobar Islands and southern India. Peechi, India, Kerala Forest. Research Institute.
- Schwartz, H. Rattan: tropical comfort throughout the house. Atglen PA, Schiffer.
- Shim, P.S. 1995. Domestication and improvement of rattan. Working Paper N° 5. New Delhi, INBAR.

- Steiner, H. The insect fauna of rattan. Eschborn, GTZ.
- Sunderland, T.C.H. [in press]. Indigenous nomenclature, classification and utilisation of African rattans. In T. Carlson & L. Maffi, eds. Ethnobotany and conservation of biocultural diversity. Advances in Economic Botany, Vol. 15. The New York Botanical Gardens, Press. Bronx.
- Sunderland, T.C.H. & Profizi, J.P. 2003. New research on African rattans. Proceedings No. 9. Beijing, INBAR. 154 pp.
- Tan, C.F. 1992. Prospects for rattan planting and a field manual for rattan cultivation in the South Pacific. Port Vila, South Pacific Forestry Development Programme.
- Tuley, P. 1995. The palms of Africa. Cornwall, UK, The Trendrine Press.
- Uhl, N.W. & Dransfield, J. 1987. Genera palmarum. Lawrence, Kansas, USA, International Palm Society.
- Uhl, N.W. & Dransfield, J. 1999. Genera palmarum after ten years. In A. Henderson & F. Borchsenius, eds. Evolution, variation, and classification of palms. Memoirs of The New York Botanical Garden, 83: 245–253.
- UNIDO. 1996. Design and manufacture of bamboo and rattan furniture. Vienna, United Nations Industrial Development Organization.
- Wakker, E.J. 1991. From cane to cory-set: the economic value and sustainability of rattan trade in Region 2, The Philippines. Report. Leiden/Cabagan/Nijmegen, Cagayan Valley Programme on Environment and Development.
- Wan Razali, W.M., Dransfield, J. & Manokaran, N. eds. 1992. A guide to the cultivation of rattan. Kepong, Malaysia, Forest Research Institute Malaysia.
- Wan Razali, W.M., Dransfield, J. & Manokaran, N. eds. 1994. Nursery techniques for rattan. Technical Report N° 2. New Delhi, INBAR.
- Weiner, G. 1992. Zur Stammanatomie der Rattanpalmen. Doctoral Dissertation, Faculty of Biology, University of Hamburg.
- Williams, J.T. & Ramanatha Rao, V. eds. 1994. Priority species of bamboo and rattan. Technical Report N° 1. New Delhi, INBAR.
- Williams, J.T., Noor, N.S.M. & Ramanuja Rao, I.V. eds. 1999. Inventory techniques and assessment of rattan & bamboo. Technical Report N° 11. Beijing, INBAR.
- Williams, J.T., Ramanuja Rao, I.V. & Rao, A.N. eds. 1995. Genetic enhancement of bamboo and rattan. Technical Report N° 7. New Delhi, INBAR.
- Wong, K.M. & Manokaran, N. 1985. Proceedings of the rattan seminar. 2-4 October 1984. Kuala Lumpur, Malaysia. Kepong, Malaysia, Rattan Information Centre.
- Wulijarni-Soitjipto, N. & Danimihardja, S. eds. 1995. Plant resources of south-east Asia. Bibliography 6. Rattans. Bogor, Indonesia, Prosea.
- Xu, H., Zeng, B., Yin, G. & Liu, Y. 1996. Rattan resources of China and current status of conservation. Working Paper N° 7. New Delhi, INBAR.
- Zhu, Zhaohua. ed. 2001. Sustainable development of the bamboo and rattan sectors in tropical China. Proceedings N° 6. Beijing, INBAR.

COMPENDIUM GLOSSARY ON RATTAN TERMS IN AFRICA

Note: This compendium glossary of terms and definitions used in rattan research and development with a special emphasis on Africa is intended to complement the *Rattan Glossary* through providing additional definitions from the rattan sector in Africa.

RATTAN RESOURCES

BIOLOGY AND SYSTEMATICS

Adaptation Any morphological, physiological, developmental of behavioural character

that enhances survival and reproductive success of an organism.

Allopatric Species occupying different and disjunct populations.

Aggregate inflorescence A seemingly single large inflorescence actually comprised of many

individual inflorescences. Common in hapaxanthic (q.v.) taxa.

Ancistrophyllum A synonym of the rattan genus, Laccosperma.

Calamus A predominantly Asian genus of rattans with a single representative in

Africa.

Centre of diversity The point at which organisms exhibit their greatest diversity.

Cincinnus A flower cluster wherein each successive flower arises in the axil of the

bracteole on the preceding flower stalk.

Congo Basin The watershed of the Congo River which contains the largest single tract of

forest in the world outside of Amazonia.

Endemic Native to, and restricted to, a particular biogeographical region.

Eremospatha Genus of rattan endemic to Africa, represented by eleven species.

Exsiccatae An index of herbarium collections for a particularly taxonomic group usually

listed by collector.

Exserted Protruding beyond the surrounding parts.

Guineo-Congolian A phytochorian of African vegetation representing the humid lowland forest

of the Congo Basin.

Inflorescence unit A single inflorescence within an aggregated inflorescence (q.v).

Juvenile A young individual that may possess morphology distinct from the adult.

Laccosperma A genus of rattan endemic to Africa represented by six species.

Monospecific Of a genus, often containing a single species but also often used to describe

extensive groups of a single species within a habitat.

Monotypic Having only one representative.

Neotype A specimen assigned as the type in the absence of the holotype.

Onococalamineae Palm subtribe which includes the genus Oncocalamus.

Oncocalamus A rattan genus endemic to Africa represented by four species.

Polymorphic Consisting of many forms, highly variable.

Polytypic

Having many representatives.

Sympatric

Species occurring together in the same geographical area.

Terre firma

Land that is not seasonally inundated.

Trilete

Describing a narrow flower opening with three lobes.

Upper Guinea

The forested region from Eastern Nigeria to Guinea.

Vicariance

The existence of closely-related taxa in different geographical areas that have

been separated by the formation of a natural barrier.

ANATOMY AND MORPHOLOGY

Aerial branching

The production of shoots in the aerial axils, producing branches.

Aphlebiae

A term formerly used to describe the reduced lowermost leaflets of a rattan

that often reflex and clasp the stem.

Attenuate

Drawn out and gradually narrowing.

Baccate

Berry-like.

Basal

At the base of an organ.

Caducous

Falling off early.

"Cat's claw"

Flagella are often armed with groups of recurved prickles resembling a cat's

claw.

Ciliate

Fringed with long hairs.

Concolorous

Having the same colour throughout,

Cuneate

Wedge-shaped,

Discolorous

Having two or more shades of colour throughout.

Elaminate rachis

A rachis devoid of true leaflets.

Equidistant

Occurring at regular intervals.

Flabellate

Fan shaped.

Geniculus

Technical term for the "knee".

Inequidistant

Occurring at irregular intervals.

Lanceolate

Lance-shaped

Lobe

Any division of an organ, particularly if the part is rounded.

Monosulcate

Referring to pollen grains; having a single groove.

Mucilage

A sticky or slimy substance or solution.

Oblanceolate

Inversely lanceolate (q.v.).

Obovate

Inversely ovate (q.v.).

Orbicular

Circular.

Ovate

With an egg-shaped outline.

Orthotropic

Growing directly towards to source of the stimulus (positively orthotropic)

or away from the source of the stimulus (negatively orthotropic).

Papillose

Bearing minute rounded projections.

Papyraceous Thin, membranous, paper-like.

Plumose Feathery.

Praemorse Irregularly truncate, appearing as if bitten off at the apex.

Proximal Situated closest to the point of attachment.

Reflexed Bent abruptly backwards.

Ruminate Refers to endosperm, where in-folding of seed coat causes discoloration.

Spathulate Spatula-shaped.

Spear leaf The emerging apical leaf.

Striate Lined.

Trapeziform Shaped like a trapezium i.e. with only two of its sides parallel.

Truncate Appearing as if cut off at the base.

Velamen The outer layer of aerial roots.

Vestigial Imperfect development of an organ which was fully developed in some

ancestral form.

"Wrinkle" A linear ridge of the ocrea of a number of species of Eremospatha.

Warty Pitted.

PHYSIOLOGY

Iteroparus An ecological term synonymous with polycarpy.

Primary axis The main vegetative structure.

Semelparous An ecological term synonymous with monocarpy

MANAGEMENT AND PLANTATIONS

Abundance The total number of individuals of a species in an area (volume, population

of community).

Beating up The replacement of dead seedlings post-planting.

Certification The process of formal accreditation in recognition of sustainable, ethical and

equitable harvest and trade.

Cutting grass A rodent (Thryonomys swinderianus); the most common pest of rattan in

cultivation in Africa.

Inventory The process of evaluating stocking of a resource.

Natural regeneration The process by which successive populations replace through reproductive

events (recruitment) in natural environmental conditions.

Parent crop The tree crop used as shade or support.

Permanent sample plots Permanently demarcated sample plots of variable size, which are

enumerated and re-measured at pre-defined intervals to determine changes

in ecological and dynamic processes.

Production-to-consumption A study of the chain of custody of rattan from harvest to the sale

of the final product.

Provenance The place of origin.

Skid trail A linear disturbance in forest where logs have been mechanically dragged

through the vegetation.

Stool management The management of individual rattan clusters,

HARVESTING

Community forestry The formal and legally recognized management of forest resources by

communities in their proximity.

Customary laws Local rules and regulations applying to the use of forest resource.

Cutlass A sturdy hand-held long blade used throughout Africa.

Harvest regime The prescribed management process by which harvest is controlled to

maximize yield while ensuring future supplies.

Harvestable cane length The proportion of the length of a single cane stem of commercial

value.

Informal taxation The process by which money changes hands informally (e.g. bribe).

Land tenure The rights of an individual or group to own and manage land.

Libation A ceremony consisting of the sprinkling and drinking of alcohol to appease

the ancestors prior to entering the forest. Common throughout West and

Central Africa.

Machete Another word for a cutlass (q.v.).

Open-access Unregulated access to a forest resource.

Resource tenure The rights of an individual or group to own and manage a particular

resource.

Sloughing Refers to the gradual flaking off of the sheath as the rattan stem matures.

Stranger Common term in Anglophone Africa for a person not from the area.

Sustainable harvest The utilization of a resource in such a way that future supplies are not

deleteriously affected.

RATTAN AS A RAW MATERIAL

TRADE

Artisan An individual craftsman.

Cottage industry Often unregulated, small-scale, processing or manufacturing businesses.

Marché des fleurs Central rattan market and processing centre, Douala, Cameroon.

Maryland Central rattan market and processing centre in Lagos, Nigeria.

Mvog-Mbi Central rattan market and processing centre in Yaounde, Cameroon.

Non-timber forest product (NTFP) Forest products other than timber, such as rattan,

TRANSPORT

Head-portering The transportation of products on the head.

PROCESSING

AT LOCAL ARTISANAL LEVEL

Atelier (French) Workshop.

Cintrage (French) Word for bending of large-diameter cane using a blow torch.

Raclage (French) Word from stripping and cleaning the cane.

Raw cane Natural untreated rattan.

Transformation All processes applied to rattan stems in order to produce finished goods.

Vannier (French) Word for weaver, but colloquially referring to artisan.

Weaver Rattan artisans who are specialised in weaving, especially baskets.

MISCELLANEOUS

African Rattan Research Programme A research initiative of University College, London and

the Royal Botanic Gardens, Kew.

Chewing stick A vegetative portion of a plant used in dental hygiene.

Domatia Small structures made by ants on host plants.

Kenja Common name for traditional rattan farm basket.Myrmecodomatia Structures provided by plants for ant colonization.

Hammock bridge Single-span woven bridges made from rattan cane common in Central

Africa.

Herbivory The consumption of vegetative material by faunal agents.

Hornbills A group of birds comprised of many species, commonly cited as being the

greatest dispersal agent of rattan seed.

Palm heart The soft growing point in the apical bud which is often edible.

Pradera (Spanish) Term for deep white sand savannahs characteristic of coastal areas of the

Congo Basin.

Predation The consumption (and often destruction) of seed by faunal agents.

Sanaga River A well-known biogeographical barrier bisecting Cameroon.

Socio-economic status Differentiation of farmers according to different wealth categories and

social backgrounds.

Yam-ban Shelf constructed with rattan cane used for storage of yams common in

Nigeria.

Yam-tie Strips of split cane sued to tie young yam shoots to supporting poles.

VERNACULAR NAMES

Bantu The name applied to a group of languages of tribal groups dispersed from SE

Nigeria to Kenya and the United Republic of Tanzania and southwards to

South Africa.

Eastern Bantu Tribal groups of the Bantu family occurring in East Africa.

Kinship metaphors The use of vernacular names for plants that impart relationships to other

species,

Niger-Congo The family of languages that dominates the forest zone from Senegal to Lake

Chad.

Non-Bantu Tribal groups within the Niger-Congo linguistic family (q.v.).

Pidgin English A corrupted form of English similar to Creole used as form of communication

particularly in Anglophone Africa.

Polysemous A vernacular name for an organism that is the equivalent of a product.

Western Bantu Tribal groups of the Bantu language family common in sub-Saharan Africa.

THE RATTANS OF AFRICA – SUMMARY OF TAXONOMY AND UTILIZATION

Genus	Species	Description	Distribution	Cane use	Non- cane uses
Calamus	deërratus G. Mann & H. Wendl.	Clustering flagellate species; stems to 20 m long up to 35 mm in diameter; leaves ecirrate	Senegal to Angola, west to Uganda	Yes, but only in absence of other, more desirable species	Many
Eremospatha	barendii Sunderland	Clustering; stems to 30m long, up to 25 mm in diameter; conspicuous knee and bracts on inflorescence	Southern Cameroon	None recorded	None recorded
	cabrae (De Wild. & Th. Dur.) De Wild.	Clustering; stems to 50 m long, up to 25 mm in diameter; leaflets obovate; papillose inflorescence	Gabon & DR Congo to northern Angola	Yes,	Few
	dransfieldii sp. nov.	Clustering; stems to 30 m, up to 30 mm in diameter; knee conspicuous; lowermost leaflets clasping stem	Upper Guinea forests (Sierra Leone to W. Nigeria)	Yes, particularly traded in Ghana	Few
	cuspidata (G. Mann & H. Wendl.) H. Wendl.	Clustering; stems to 15 m long, 25 cm in diameter; leaflets with conspicuous apiculum	Congo Basin	Few	None recorded
	haullevilleana De Wild.	Clustering; stems to 25 m long, up to 25 mm in diameter; ocrea striate; leaflets spathulate – ovate	Congo Basin	Yes, highly prized and widely traded	Many
	hookeri (G. Mann & H. Wendl.) H. Wendl.	Clustering; stems to 30 m, up to 30 mm in diameter; knee conspicuous, leaflets rhomboid to obovate	Eastern Nigeria to Gabon	No	Few
	laurentii De Wild.	Clustering; stems to 30 m, up to 30 mm in diameter; knee conspicuous; lowermost leaflets clasping stem	Congo Basin with outliers in Upper Guinea forest	Few recorded	None recorded
	macrocarpa (G. Mann & H. Wendl.) H. Wendl.	Clustering; stems to 50 m long, 10–18mm in diameter; juvenile leaves bifid, adult leaflets linear lanceolate	Senegal to DR Congo	Yes, juvenile form reputed to be the best small-diameter cane in Africa. Widely traded	Many
	quinquecostulata Becc.	Clustering; stems to 15 m long, 10 mm in diameter	SE Nigeria to southern Cameroon	Few	None recorded
	tessmanniana Becc.	Clustering; stems to 100 m long (although branching is common), up to 15 cm in diameter; glaucous grey-green leaflets	Southern Cameroon to E. Guinea	None recorded	None recorded
	wendlandiana Dammer ex Becc.	Clustering; stems to 60 m, up to 30 mm in diameter; conspicuous knee and rhomboid leaflets	SE Nigeria to Gabon	Yes, but poor quality cane	

Disclaimer: This paper is not a taxonomic work and should not be considered the place of first publication for any new taxon or synonym it contains.

Genus	Species	Description	Distribution	Cane use	Non- cane uses
Laccosperma	acutiflorum (Becc.) J. Dransf.	Clustering; stems to 70 m, up to 60 mm in diameter; yellowish appearance; non-pendulous leaflets	Upper Guinea to DR Congo	None recorded	None recorded
	korupensis sp. nov.	Clustering; stems often branching, to 10 m, up to 15 mm in diameter; acanthophylls absent	Coastal forests of Cameroon	None recorded	None recorded
	laeve (G. Mann & H. Wendl.) H. Wendl.	Clustering; stems often branching, to 10 m, up to 15 mm in diameter; leaflet margins unarmed; seeds smooth	Upper Guinea to DR Congo	None	Few
	opacum (G. Mann & H. Wendl.) Drude	Clustering; stems often branching, to 10 m, up to 15 mm in diameter; leaflet margins armed; seeds warty	Upper Guinea to DR Congo	Yes, but poor quality cane	Few
	robustum (Becc.) J. Dransf.	Clustering; stems to 45 m, 50 mm in diameter; leaflets conspicuously pendulous, glaucous blue-green	SE Nigeria to DR Congo	Yes, highly prized cane; traded widely	Many
	secundiflorum (P. Beauv.) Kuntze	Clustering; stems to 30 m, up to 35 mm in diameter; leaflets sigmoid, dark green	Senegal to DR Congo	Yes, highly prized cane; traded widely	Many
Oncocalamus	macrospathus Burr.	Clustering; stems to 35 m, up to 30 mm in diameter, sheaths well armed; rachillae bright yellow, seeds smooth.	Southern Cameroon to northern Angola	No; poor quality cane	None recorded
	mannii (H. Wendl.) H. Wendl.	Clustering; stems to 30m, 28 mm in diameter, sheaths well-armed; rachillae bright crimson, seeds warty	Southern Cameroon to Gabon	No; poor quality cane	None recorded
	tuleyi Sunderland	Clustering; stems to 30 m, up to 45 mm in diameter, sheaths sparsely or unarmed; seeds smooth	SE Nigera and SW Cameroon	No; poor quality cane	None recorded
	wrightianus Hutch.	Clustering ?; stems to 10 m, up to 10 mm in diameter; leaflets sigmoid	Southern Nigeria	Yes, but for cane rope and twine only	Few

CROSS-LISTING OF RATTAN GENUS/SPECIES TO VERNACULAR NAMES BY COUNTRY

(language in parentheses)

Calamus deërratus	BENIN: akete (Defi); dekun wéwé (Gun-Gbe)
G. Mann & H. Wendl.	CAMEROON: nding (Bulu) CENTRAL AFRICAN REPUBLIC: bioh (Banda-Yangere): CÔTE D'IVOIRE: ailé-mlé (Anyin); gapapa (Godié) DR CONGO: kpude (Zande); ma-ndakele (Ngbaka-Ma'bo); ikonga (Lombo); babio (Mongo-Nkundu); lekwe (BaMbuti) GAMBIA: tambo (Mandinka)
	GHANA: demmeré (Twi, also trade name); néné, (Akan); ayeka (Anufo); ayeka (Sehwi); keteku (Éwé); ayeké (Nzema) GUINEA: tambo (Mandinka); tâbi (Malinke) GUINEA-BISSAU: quitite (Balanta); batanou (Biafada); mantampa de sera (Crioulo, Upper Guinea); tambem (Fulfulde-Pulaar); tambo (Mandinka); ecapate (Mandyak); quito (Papel) EQUATORIAL GUINEA: nzing (Fang) LIBERIA: kpa kala (Mano) NIGERIA: erogbo, erugbo (Edo); ekwe-oji, iye (Igbo); apié (the plant itself, or the cane-rope made from it) (Ijo-Izon), bwálàm (a cane) (Pero); erogbo, erugbo (Yoruba) SENEGAL: ki tid (Balanta); kintem (Bainouk); mantampa da sera (Crioulo, Upper Guinea); bu kètao bu ketav, fu fiaf, ka kèt, ka tay, ke hiya, kékiya (Jola-Fogny); tambem (Fula-Pulaar); tambi (Tukulor); tambo (Mandinka); tābi (Malinke); e kapat (Mandyak); ratlan (Wolof) SIERRA LEONE: lumboinyo-lando (Kisi); kanga-mese (Kono); tambe (Loko); tambi (Maninka); tamba (def. tembui) (Mende); tambi (Susu); ra-gbet (Themne); tambu-na (Yalunka)
Eremospatha barendii Sunderland	UGANDA: bi-lekwe (Amba) none recorded
Eremospatha cabrae (De Wild. & Th. Dur.) De Wild.	ANGOLA: m'bamba (Mbundu-Luanda) DR CONGO: li-findo (Lombo); lu-bambi (Kituba); e-safa (Mongo-Nkundu); ki-sakata (Kete) GABON: osono (Tsogo); osono (Pinji); ozono (Myene); li-bamba (Vili); nkolé (Kélé); nkolu (Seki); du-bamba (Barama); du-bamba (Lumbu); ivéta (Duma); iló-lóngo (Kota); u-lóngo (Benga); lé-mbumu (Ndumu); nlong (Fang)
Eremospatha cuspidata (G. Mann & H. Wendl.) H. Wendl.	EQUATORIAL GUINEA: ndera (Fang)
Eremospatha dransfieldii sp. nov.	GHANA: Mfia (Twi) NIGERIA: epa-emele (Yoruba); inima ború (Ijo-Izon) SIERRA LEONE: balu (Kono); mbalu (defui) (Mende); ra-thamp (Themne)
Eremospatha haullevilleana De Wild.	CENTRAL AFRICAN REPUBLIC: pongbo (Ngombe) CONGO: mbaama (Téké) DR CONGO: li-findo (Lombo); mbowe (Zande); lu-popi ((Nandi)); n'kele (Bangala); m'bio (Bangi); lo-koli (Kele); ke-kele (Lingala); lu- kodi (Luba-Shari); lu-busi (Tembo); lu-bubi (Lega-Mwenga); yofoko (Mungo-Nkundu); lo-keko (Lusengo); kodi (Luba-Kasai); tukpuru (Bhele) TANZANIA: urugage (Ha) UGANDA: bibbobbi (Amba); enga (Luganda)
Eremospatha hookeri (G. Mann & H. Wendl.) H. Wendl.	CAMEROON: ki-yince (Balundu-Bima); mbunden (Bakundu-Balue) EQUATORIAL GUINEA: alua-nlong (Fang) GABON: gigorula (Sira) NIGERIA: itomi (Ekit)

Eremospatha laurentii	CAMEROON: kpakpa (Ewondo)		
De Wild.	CENTRAL AFRICAN REPUBLIC: bo-kondi (Banda-Yangere) DR CONGO: bo-ngale (Mongo-Nkundu); ikonga (Lombo); nkelele		
	mo-none (Lingala); nkoli (Bali)		
	EQUATORIAL GUINEA: ebuat (Fang)		
	SIERRA LEONE: bongei (Mende)		
Eremospatha macrocarpa (G. Mann & H. Wendl.) H. Wendl.	BENIN: dekon (Defi); dekun vovo (Gun-Gbe) CAMEROON: filet (Trade); cane rope (Pidgin); echié (Denya); nlong (indef.) melong (def.) (Bulu); bana ndongo = young cane (bana = child)		
	(Balundu-Bima); <i>nloun</i> (Baasa) CÔTE D'IVOIRE: <i>ailè-mlé</i> (Anyin)		
	EQUATORIAL GUINEA: nlong (indef.) mi-long (def.) = juvenile		
	stems, ongam = adult (Fang) GABON: ke-gèma (Lumbu); nyèvila (Sira); ongam (Fang); ndètèse		
	(Kota); iganga-tsungu (Punu); songu (Vumbu); tongo (Tsogo); mbubi (Ndumu)		
	GHANA: mfia (Akan-Asanti); néné (Nzima)		
	LIBERIA: bele de bele (Mano)		
	NIGERIA: íkan (Edo); odu-ana (Igbo); bórú (Ijo-Izon); ukan		
	(Yoruba); ekakieri = male (i.e. with no fruits), irrumka = female (with		
	fruits) (Ekit); iro (Esan)		
	SIERRA LEONE: penden (Kissi); balu (Kono); mbalu (Loko); mbalu, koto mbalu = juvenile (Mende); ra-thamp (Themne)		
Eremospatha quinquecostulata	CAMEROON: calumé-echié (Denya)		
Becc.	GABON: di-bula (Sira)		
Eremospatha tessmanniana	CAMEROON: calumé echié (Denya)		
Becc.	EQUATORIAL GUINEA: ongam-akot (Fang)		
Eremospatha wendlandiana	CAMEROON: cane basket (Pidgin); mua-echié (Denya)		
Dammer ex Becc.	CONGO: ma-bulu (Téké) EQUATORIAL GUINEA: akot (Fang)		
	GABON: égoo (Tsogo); ngundju (Punu); ngundju (Vumbu)		
	NIGERIA: eghounka (Ekit)		
Laccosperma acutiflorum	CAMEROON: giant cane (Pidgin)		
(Becc.) J. Dransf,	EQUATORIAL GUINEA: ekwass (Fang)		
	NIGERIA: ukpekpe (Ekit)		
Laccosperma korupensis sp. nov.	None recorded		
Laccosperma laeve (G. Mann & H. Wendl.) H. Wendl.	CAMEROON: ge- nomé-echié = "slave to cane rope" (Denya) CENTRAL AFRICAN REPUBLIC: gao (Banda-Yangeri)		
	CÔTE D'IVOIRE: ailé-mla (Anyin)		
	EQUATORIAL GUINEA: ndele (Fang) GABON: munyengi (Sira); tèkè (Tsogo)		
	GABON: munyengi (Sira); tere (1sogo) GHANA: nguni (Wasa); tenan muhunu = "it lives in the world for		
	nothing" (Twi)		
	NIGERIA: itunibia (Ekit)		
Laccosperma opacum	CAMEROON: liko ko'ko = "close to cane" (Mokpwe); ge-nomé-echié		
(G. Mann & H. Wendl.) Drude	= "slave to cane rope" (Denya)		
	CONGO: kimbana ki mukaana (Téké) EQUATORIAL GUINEA: npue-nkan (Fang)		
	GABON: ibulu (Myene); di-bulu (Sira); di-bulu (Lumbu); abulo (Kele);		
	éboa (Tsogo) ulóngó-mwa-iki (Benga)		
	GHANA: eholobaka (Nzema); sayai (Akan-Asanti); edem (Kwawu)		
	NIGERIA: abu (Edo); ekwe oya = cane for tie-tie (Igbo)		
Laccosperma robustum	CAMEROON: eka (Ewondo); nkan, aka = cleaned cane (Bulu); dikah		
(Burr.) J. Dransf.	(indef.) mekah (def.) (Bakundu-Balue); gekwiya (Denya); makak (Trade)		
	CENTRAL AFRICAN REPUBLIC: gao (Banda-Yangere)		
	DR CONGO: ekpale-ekpale (Bwa): li-sele (Lombo); nkao (Ngbaka-		
	Ma'bo); ikoonga (Lombo)		
	EQUATORIAL GUINEA: nkan, aka = cleaned cane (Fang)		
	GABON: asperge (nom forestier)		

Laccosperma secundiflorum	ANGOLA: mi-cau (Mbundu-Luanda)		
(P. Beauv.) Küntze	BENIN: kpanon (Defi); kpacha (Gun-Gbe) CAMEROON: ka-kawa (Baka): ekwos (Balundu-Bima); nde-gekwiya		
	(Denya)		
	CONGO: mukaana a nguomo (Téké)		
	CÔTE D'IVOIRE: kumh (Attié); agué (Ebrié); djoho, djolo (Krumen); ahika (Anyin); gblé (Godié)		
	DR CONGO: ma-kauw, bo-kauw (def.) (Lingala); bo-nganga		
	(Mongo-Nkundu); nkau (Kongo)		
	GABON: nkan (Fang); nkanda (Kélé); ikandji (Kota); okana (Ndumu); mokangé (Pinji); mokangé (Tsogo); mukanda (Sira); mukanda (Duma); mukanda (Lumbu); nkogu (Myene); nkanyi (Seki)		
	GHANA: willow (Trade); ayié (Akan-Asanti); ayike = large rattan (Nzema)		
	GUINEA-BISSAU: tambem-hadje (Fulfulde-Pulaar); tambendjom		
	(indef.), tambendjom-ô (def.) (Mandinka)		
	NIGERIA: ohwara (Urhobo); okankan = whole cane, ukwen = when split (Edo); òbóng (Efik); ukpé = cane rope made of this species (Ijo-Izon); iga (Ekpeye); añà (Igbo); epe-nla, ikan-ikó = a hook (Yoruba)		
	SENEGAL: ka-likut (Jola-Fogny)		
	SIERRA LEONE: lumboinyo-piando (Kisi); kangane (Kono); kafo		
	(Loko); kavo (def. kavui) (Mende); ka-gbesu = whole stems, e-gbak = leafless part of the stem (Themne)		
0 1			
Oncocalamus macrospathus Burr.	CAMEROON: eboti (Ewondo)		
Oncocalamus mannii	CAMEROON: mfop n'lon (Bulu)		
H. Wendl.) H. Wendl	CONGO: mituo (Téké)		
	EQUATORIAL GUINEA: asa-nlong (juvenile), ndoro (adult) (Fang)		
Oncocalamus tuleyi	CAMEROON: madame (Trade/Pidgin); mo'ap (Balundu-Bima); edju		
Sunderland	(Bakundu-Balue); moa-echié (Denya)		
	NIGERIA: iboh (Ekit)		
Oncocalamus wrightianus	BENIN: hofle (Defi); gbe-dekun (Gun-Gbe)		
Hutch	NIGERIA: akwal' (Igbo); pankéré (Yoruba).		

LIFE FORM AND INTERMEDIATE FOLK CLASSIFICATION OF RATTAN CANES IN SELECTED AFRICAN LANGUAGE GROUPS

Folk name (-root)	Language (country)	Language subgroup ²	Ethnobiological
7// 11		_	Intermediate
-ailé (all spp. except large diameter Laccosperma spp.) -ahike (large diameter Laccosperma spp.)	Anyin (Côte d'Ivoire)	non-Bantu	Generic
-nwatia (all climbing palms)	Akan-Asanti (Ghana)	non-Bantu	Life form
-dekun (all climbing palms)	Gun-Gbe (Benin)	non-Bantu	Life form
-ikan (all climbing palms)	Edo (Nigeria)	non-Bantu	Life form
-egbèé (all climbing palms)	Yoruba (Nigeria)	non-Bantu	Life form
-kogiri (all climbing palms)	Fulfulde	non-Bantu	Life form
-kwagiri (all climbing palms)	Hausa	non-Bantu	Life form
-uga (all climbing palms)	Igbo (Nigeria)	non-Bantu	Life form
-echié (all spp. except large diameter Laccosperma spp.) -gekwiya (large diameter Laccosperma spp.)	Denya (Cameroon)	Bantu	Intermediate Generic
-edju (Oncocalamus spp.) -ndongo (Eremospatha spp.) -mekah (large diameter Laccosperma spp.)	Oroko language group (Cameroon)	non-Bantu	Generic Generic Generic
-nloun (all spp. except large diameter Laccosperma spp.) -? (large diameter Laccosperma spp.)	Bassa (Cameroon)	Bantu	Intermediate Generic
-mokolo (small diameter canes) -mekah (large diameter Laccosperma spp.)	Bakossi (Cameroon)	Bantu	Intermediate Generic
-nlon (all spp. except large diameter <i>Laccosperma</i> spp.) -nkan (all <i>Laccosperma</i> spp.)	Bulu (Cameroon)	Bantu	Intermediate Generic
-nlong (all spp. except large diameter Laccosperma spp.) -nkan (all Laccosperma spp.)	Fang (Equatorial Guinea & Gabon)	Bantu	Intermediate Generic
-mikaana (all climbing palms)	Téké (Congo)	Bantu	Life form
-kekelé (small diameter canes) -likaw (large diameter Laccosperma spp.)	Zande, Lingala, Swahili-DRC	Bantu	Intermediate Generic

² Bantu linguistics is characterized by the possession of root terms that are distinguished into singular/plural by independent prefixes. These root terms are commonly shared between related languages and it is variation within the prefixes that is reflected in the variation in names for plants, for example.

SELECTED CANE PRODUCTS AND THEIR NOMENCLATURE

Product	Name	Language (country)	Notes	
Palm heart	mekah*	Balundu-Bima (Cameroon)	Apex of L. robustum	
	baa ndanga	Téké (Congo)	Apex of E. haullevilleana	
	mukaana a ngomu*	Téké (Congo)	Apex of L. secundiflorum	
	mukaana a buulu*	Téké (Congo)	Apex of E. wendlandiana	
	ngodji	Lomdo (DR Congo)	Apex of L. robustum	
Cane and cane rope	aka	Fang (Equatorial Guinea)	Cleaned stems of L. robustum / L. secundiflorum	
	икра	Ijo-Izon (Nigeria)	Split stems of L. secundiflorum	
	ukwen	Edo (Nigeria)	Split stems of L. secundiflorum	
	ekwe oya*	Igbo (Nigeria)	Split stems of L. opacum for tie-tie	
	ekwele / akwala	Igbo (Nigeria)	Split stems of O. wrightianus (coarse cordage)	
	udo	Igbo (Nigeria)	Split stems of O. wrightianus (fine twine	
	elili	Igbo (Nigeria)	Split stems of O. wrightianus (string or thread)	
	apié*	Igbo (Nigeria)	Cane rope of C. deërratus	
Baskets	kenten	Akan-Asanti (Ghana)	Long baskets made from stems of L. opacum	
	penja	Bakossi (Cameroon)	All cane baskets	
	mbaka	Denya (Cameroon)	Farm baskets made from E. macrocarpa	
	bi-dong	Fang (Equatorial Guinea)	Fish baskets made from split stems of L. robustum & E. macrocarpa	
	be-koro	Fang (Equatorial Guinea)	Fish traps made from split stems of L. robustum & E. macrocarpa	
	nkeuiñ	Fang (Equatorial Guinea)	Farm baskets made from split stems of L. robustum & E. macrocarpa	
	maa kutu	Téké (Congo)	Baskets made from E. haullevilleana (baana = small; mwana kutu = medium; kiana = large)	

^{*} indicates the product name that is also the generic category, or derived directly from it

SUMMARY OF THE NON-CANE USES OF AFRICAN RATTANS

Species	Use	Region
Calamus deërratus	Palm heart eaten	Ghana, Sierra Leone
	Young shoots roasted and eaten	Ghana
	Grilled leaves macerated and made into tea to promote weight loss and to treat oedema caused vitamin deficiencies	Senegal
	Ash from burned roots used as salt substitute	Guinea-Bissau
	Sheath twisted and used to clean cooking pans	Ghana
	Sheath twisted to make rope	Nigeria
Eremospatha cabrae	Base of leaf sheath used as a chewstick	DR Congo
E. haullevilleana	Palm heart eaten	Congo
	Fruits used for decoration	DR Congo
	Acanthophylls used as fish hooks	DR Congo
	Sap used as arbortifacient	DR Congo
E. macrocarpa	Powdered root used to treat syphilis	Ghana, Nigeria
E. wendlandiana	Palm heart eaten	Congo
	Base of leaf sheath used as a chewstick	Cameroon
Laccosperma laeve	Roasted roots eaten to improve virility	Central African Republic
L. орасит	Sap potable and drunk by forest workers	Gabon
	Palm heart eaten	Congo
L. robustum	Palm heart eaten	Cameroon to Gabon
	Young leaves eaten in stews	Equatorial Guinea
L. secundiflorum	Palm heart eaten	Throughout its range
	Young shoots eaten	Throughout its range
	Sap potable and drunk by forest workers	Senegal, Gabon
	Tea from young shoots used as vermifuge	Ghana, Gabon
	Sap, when mixed with other species, used to treat dysentary	DR Congo
Oncocalamus tuleyi	Base of leaf sheath used as a chewstick	Cameroon
O. wrightianus	Base of leaf sheath used as a chewstick	Nigeria

CURRENTLY RECOGNIZED NAMES AND SYNONYMS FOR AFRICAN RATTANS³

CALAMUS

Calamus deërratus G. Mann & H. Wendl.

EREMOSPATHA

Eremospatha barendii Sunderland

Eremospatha cabrae (De Wild. & Th. Dur.) De Wild. syn. Calamus cabrae De Wild. & Th. Dur. Eremospatha rhomboidea Burr. Eremospatha suborbicularis Burr.

Eremospatha cuspidata (G. Mann & H. Wendl.) H. Wendl. syn. Calamus (Eremospatha) cuspidatus G. Mann & H. Wendl.

Eremospatha dransfieldii sp. nov.

Eremospatha haullevilleana De Wild.

Eremospatha hookeri (G. Mann & H. Wendl.) H. Wendl. syn. Calamus (Eremospatha) hookeri G. Mann & H. Wendl.

Eremospatha laurentii De Wild.

Eremospatha macrocarpa (G. Mann & H. Wendl.) H. Wendl. syn. Calamus (Eremospatha) macrocarpus G. Mann & H. Wendl. Eremospatha sapini De Wild.

Eremospatha quinquecostulata Becc.

Eremospatha tessmanniana Becc.

Eremospatha wendlandiana Dammer ex Becc. syn. Eremospatha korthalsiaefolia Becc.

LACCOSPERMA

Laccosperma acutiflorum (Becc.) J. Dransf. syn. Ancistrophyllum acutiflorum Becc.

Laccosperma korupensis sp. nov.

³ Disclaimer: This paper is not a taxonomic work and should not be considered the place of first publication for any new taxon or synonym it contains.

Laccosperma laeve (G. Mann & H. Wendl.) H. Wendl. syn. Ancistrophyllum laeve (G. Mann & H. Wendl.) Drude Calamus (subgen. Laccosperma) laevis G. Mann & H. Wendl.

Laccosperma opacum (G. Mann & H. Wendl.) Drude syn. Ancistrophyllum opacum (G. Mann & H. Wendl.) Drude Calamus (subgen. Laccosperma) opacus G. Mann & H. Wendl.

Laccosperma robustum (Burr.) J. Dransf, syn. Ancistrophyllum robustum Burr.

Laccosperma secundiflorum (P. Beauv.) Küntze syn. Ancistrophyllum secundiflorum (P. Beauv.) H. Wendl. Calamus (subgen. Ancistrophyllum) secundiflorus G. Mann & H. Wendl. Calamus secundiflorus P. Beauv. Laccosperma laurentii (De Wild.) J. Dransf. Ancistrophyllum laurentii De Wild. Ancistrophyllum majus Burr.

ONCOCALAMUS

Oncocalamus macrospathus Burr.

Oncocalamus mannii (H. Wendl.) H. Wendl. syn. Calamus (Oncocalamus) mannii H. Wendl. Oncocalamus acanthocnemis Drude Oncocalamus phaeobalanus Burr. Calamus niger Braun & Schum.

Oncocalamus tuleyi Sunderland

Oncocalamus wrightianus Hutch.

BIBLIOGRAPHY

- Defo, L. 1999. Rattan or porcupine? Benefits and limitations of a high value non-wood forest product for conservation in the Yaounde region of Cameroon. In T.C.H. Sunderland, L.E. Clark & P. Vantomme, eds. Non-wood forest products of Central Africa: current research issues and prospects for conservation and development, pp 237–244. Rome, FAO.
- Hédin, L. 1929. Les rotins au Cameroun. Rev. Bot. Appl., 9: 502-507.
- Minga, M.D. 2003. The impact of rattan exploitation on the preservation of forests I Kinshasa. *In* T.C.H. Sunderland & J.-P. Profizi, eds. *New research on African rattans*, pp. 91–96, Proceedings No. 9. Beijing, INBAR.
- Morakinyo, A.B. 1995. The commercial rattan trade in Nigeria forests. Trees and People Newsletter, No. 25.
- Oteng-Amoako, A.A. & Obiri-Darko, B. 2003. Rattan as a sustainable cottage industry in Ghana: the need for development interventions. *In* T.C.H. Sunderland & J.-P. Profizi, eds. *New research on African rattans*, pp. 105–114. Proceedings No. 9. Beijing, INBAR.
- Profizi, J.-P. 1986. Notes on West African rattans. RIC Bulletin, 5(1): 1-3.
- Sunderland, T.C.H. 2001. The taxonomy, ecology and utilisation of African rattans (Palmae: Calamoideae). PhD thesis. University College, London and Royal Botanic Gardens, Kew, UK.
- Sunderland, T.C.H. [in press]. Indigenous nomenclature, classification and utilisation of African rattans. In T. Carlson & L. Maffi, eds. Ethnobotany and conservation of biocultural diversity. Advances in Economic Botany, Vol. 15. The New York Botanical Gardens, Press. Bronx.
- Sunderland, T.C.H., Defo, L., Ndam, N., Abwe, M. & Tamnjong, I. 2003. A socio-economic profile of the rattan trade in Cameroon. *In* T.C.H. Sunderland & J.-P. Profizi, eds. *New research on African rattans*, pp. 115–140. Proceedings No. 9. Beijing, INBAR.

BIBLIOGRAPHY

- Defo, L. 1999. Rattan or porcupine? Benefits and limitations of a high value non-wood forest product for conservation in the Yaounde region of Cameroon. In T.C.H. Sunderland, L.E. Clark & P. Vantomme, eds. Non-wood forest products of Central Africa: current research issues and prospects for conservation and development, pp 237–244. Rome, FAO.
- Hédin, L. 1929. Les rotins au Cameroun. Rev. Bot. Appl., 9: 502-507.
- Minga, M.D. 2003. The impact of rattan exploitation on the preservation of forests I Kinshasa. *In* T.C.H. Sunderland & J.-P. Profizi, eds. *New research on African rattans*, pp. 91–96, Proceedings No. 9. Beijing, INBAR.
- Morakinyo, A.B. 1995. The commercial rattan trade in Nigeria forests. Trees and People Newsletter, No. 25.
- Oteng-Amoako, A.A. & Obiri-Darko, B. 2003. Rattan as a sustainable cottage industry in Ghana: the need for development interventions. *In T.C.H.* Sunderland & J.-P. Profizi, eds. *New research on African rattans*, pp. 105–114. Proceedings No. 9. Beijing, INBAR.
- Profizi, J.-P. 1986. Notes on West African rattans. RIC Bulletin, 5(1): 1-3.
- Sunderland, T.C.H. 2001. The taxonomy, ecology and utilisation of African rattans (Palmae: Calamoideae). PhD thesis. University College, London and Royal Botanic Gardens, Kew, UK.
- Sunderland, T.C.H. [in press]. Indigenous nomenclature, classification and utilisation of African rattans. In T. Carlson & L. Maffi, eds. Ethnobotany and conservation of biocultural diversity. Advances in Economic Botany, Vol. 15. The New York Botanical Gardens, Press. Bronx.
- Sunderland, T.C.H., Defo, L., Ndam, N., Abwe, M. & Tamnjong, I. 2003. A socio-economic profile of the rattan trade in Cameroon. *In* T.C.H. Sunderland & J.-P. Profizi, eds. *New research on African rattans*, pp. 115–140. Proceedings No. 9. Beijing, INBAR.

NON-WOOD FOREST PRODUCTS

- 1. Flavours and fragrances of plant origin (1995)
- 2. Gum naval stores: turpentine and rosin from pine resin (1995)
- 3. Report of the International Expert Consultation on Non-Wood Forest Products (1995)
- 4. Natural colourants and dyestuffs (1995)
- 5. Edible nuts (1995)
- 6. Gums, resins and latexes of plant origin (1995)
- 7. Non-wood forest products for rural income and sustainable forestry (1995)
- 8. Trade restrictions affecting international trade in non-wood forest products (1995)
- 9. Domestication and commercialization of non-timber forest products in agroforestry systems (1996)
- 10. Tropical palms (1998)
- 11. Medicinal plants for forest conservation and health care (1997)
- 12. Non-wood forest products from conifers (1998)
- 13. Resource assessment of non-wood forest products Experience and biometric principles (2001)
- 14. Rattan Current research issues and prospects for conservation and sustainable development (2002)
- 15. Non-wood forest products from temperate broad-leaved trees (2002)
- 16. Rattan glossary and Compendium glossary with emphasis on Africa (2004)

