# Manual de MADERAS de la Biósfera Maya


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# Cordon Logistics

Our goal is to offer wood products of the highest quality. We offer solid flooring, decking, skirting, cladding, false ceilings, posts and beams for interior and exterior, doors and windows, kitchens and cabinetry, slatted panels, and unique decorative pieces with their natural edge. With our battery of boiler-based dryers, we ensure wood dried with cutting edge technology. With this manual, we intend to guide you, dear customer, about the mechanical and physical properties of our woods. Beyond their technical properties, we want to encourage curiosity and love for all the benefits of forests: their supply of wood, food, medicines, dyes and many more values.

# About Our Partners

It was formed in 2019 in response to the alarming loss of forest cover in Guatemala.

Our focus is the conservation of forests in the Northeast and North of the country, in the middle of which is the Maya Biosphere Reserve, which covers some 2.1 Million hectares, representing 19% of the national territory. Despite current environmental laws, this area has suffered among the highest rates of degradation and deforestation lately.

Whithin the reserve, there is an area called the multiple-use zone, which covers an area of 802,675 hectares. Through its supply forest concessions in the Reserve and a network of private owners in the buffer areas, a sustainable and equitable forestry model is being strengthed and deepened.

Our company industrializes and markets more than a dozen tropical species, from softwoods to the so-called “quebranchos” for their high strenght and durability, such as manchiche and pucte. We buy wood directly from the communities that take care of the forests. The income contributes directly to social welfare, education and health. On the other hand, the concessions are governed by strict regulations established by the National Council of Protected Areas (CONAP). Each concessionaire has signed a contract that includes a series of requirements, including complete forest censuses, a forest management plan, and annual operations plans. Only selective extraction of trees is allowed, excluding young individuals and seedlings, to ensure that the ecosystem remains in constant regeneration, providing a healthy habitat for a vast number of flora and fauna. The intervals between interventions are long-term, allowing for rest and recovery times.

Currently, 337 families benefit directly and 2,227 families indirectly from the comprehensive management of timber and non-timber resources, such as wild nuts and ornamental plants. It is estimated that the concessions generate more than 150,000 jobs annually. Our policies require that our wood be completely legal and traceable. Each year we undergo an external audit under the standards of the Forest Stewardship Council® (FSC®). The community management system has been a world reference with more than 157,000 hectares recovered in the las 10 years. As a carbon sink, the multiple-use zone maintains a CO2 stock of 207 tons, a massive ecosystem service from Guatemala to the entire world.

Our Partners have invested in research and commercial development on lasser-known species with the aim of allowing for distributed extractions over a range of species and thus minimising the impact of over-logging of the most commercial ones, such as Mahogany.

# CEDRO

448 Kg/m³

## SPANISH CEDAR

### APPEARANCE OF WOOD

Heartwood pink to reddish brown when freshly cut, turning reddish brown after exposure. Sapwood usually sharply demarcated. Grain generally straight, sometimes overlocked: texture varies from fine and uniform to coarse and uneven. Medium to high luster. Characteristic figure consists of a series of dark lines on a red background. Denser specimens often have a golden luster like mahogany. The wood has a distinctive, pleasant odor arising from a rubber-like substance with a volatile oil.

### TREE SHAPE AND DISTRIBUTION

Its natural range extends from Mexico to Argentina and parts of the Caribbean. Extensively cultivated in Africa. The trees thrive in fertile, well-drained moist sites, but adapt well to a variety of climates in drier, mountainous terrain. Trees reach heights of up to 35 metres and diameters exceeding 100 centimetres with broad buttresses. The species does not occur in high concentrations in natural forests due to the tip-boring moth Hypsipyla Grandella. The leaves, when crushed, have a garlic-like odour that becomes more intense during flowering.

### PROCESSING PROPERTIES

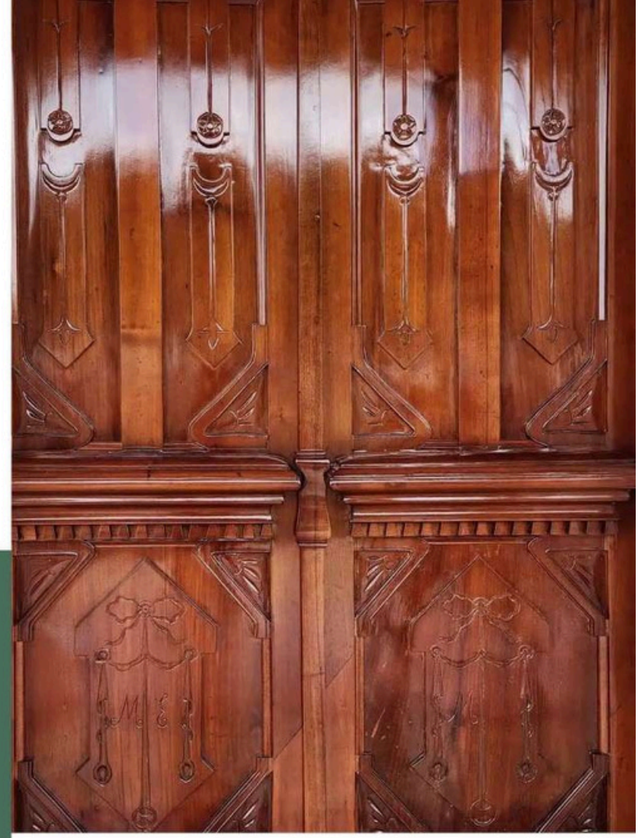
Very easy to work by hand and with machine tools, but somewhat difficult to bore cleanly. Easy to cut into veneer, but with some tendency to produce woolly surfaces if implements are dull. Good sanding, nailing and gluing properties: stains and finishes well, but gums and oils are sometimes a problem in polishing. Takes varnish and polishes with excellent results if putty is applied.
Good steam-bending properties. Peels well. Dries quickly without warping or splitting, although individual pieces tend to distort or collapse during kiln drying. This can be controlled by using a low-temperature program. Holds place well when fabricated.


### STRENGHT AND DURABILITY

High strength for its density. Weight varies considerably, depending on location, site, age of tree and rate of growth. Dense heartwood material classified as durable (class 2 according to EN 350). Good resistance to subterranean and drywood termites, but low resistance to attack by marine borers. Excellent weathering characteristics. Movement in service is small.

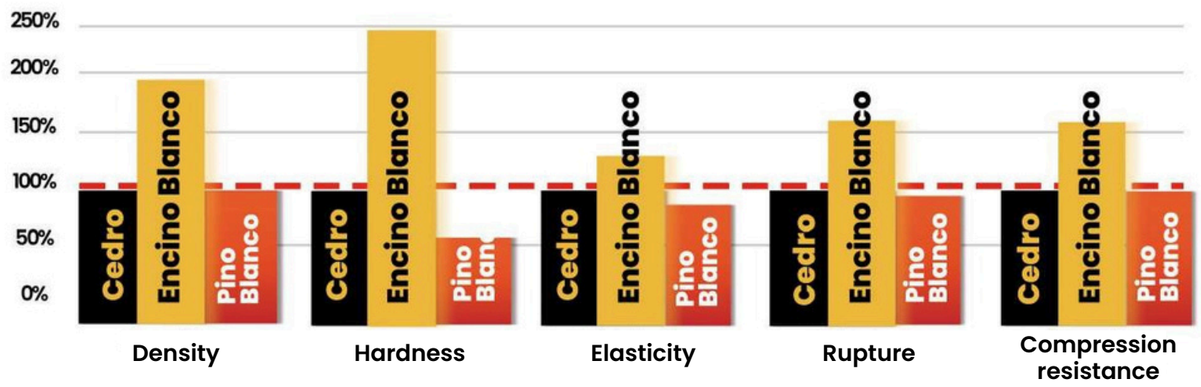
### ECOLOGICAL AND SOCIAL IMPORTANCE

The name Cedro came about when Spanish settlers in the Americas found its aroma reminiscent of the Old World Cedar (Cedrus). With its copious flowering, cedar is an important species for honey production. Indigenous groups boil the leaves, roots and wood to treat bronchitis and stomach ailments. An infusion of the leaves is used as a mouthwash to relieve toothache. when used as an interior for wardrobes, the wood is an excellent precaution against clothes moths. Classified as Vulnerable by the IUCN in 2012 and listed on CITES Appendix ll



### USES OF WOOD


### MECHANICAL AND PHYSICAL PROPERTIES



# CAOBA
## PETENERA

**BIG-LEAF MAHOGANY**

560 Kg/m³

### APPEARANCE OF WOOD

Heartwood pinkish brown, rose-pink, salmon-colored to light red. Deepening with age to deep red or brown with a distinctive yellowish sapwood. Gran generally straight, but sometimes interwoven with distinct fiddleback, blister, mottle, etc. patterns. Fine to medium texture. High, golden, luster.

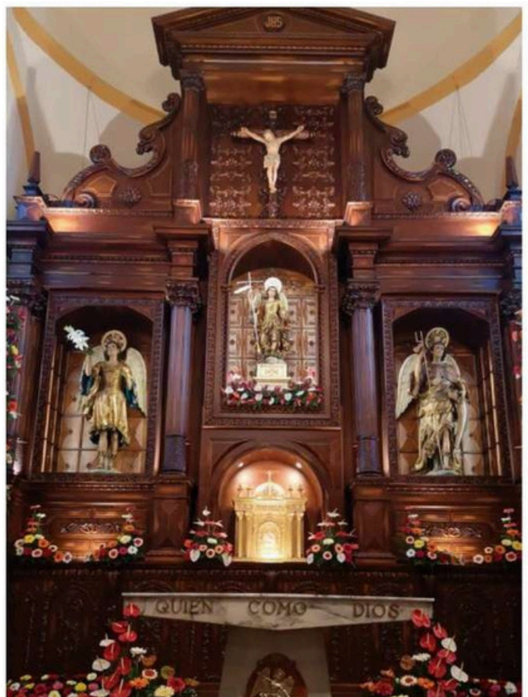
***Swietenia macrophylla***

### TREE SHAPE AND DISTRIBUTION

Widely distributed from southern Mexico to Central America and most of the Amazon, the closely related Pacific mahogany (Swietenia humilis) predominates on the west coast of Central America, while the Cuban mahogany (Swietenia mahogani) is found on the larger Caribbean islands (now endangered). The tree reaches heights of up to 50 metres, and diameters of 2 metres with heavy buttresses and clear-cut trunks up to 20 metres. It is typically sparsely planted in ofrests with no more than 4 to 8 trees per hectare because of the threat of the wood-boring moth that attacks mahogany, cedar and other members of the Meliaceae family by entering the apex of young trees.

### PROCESSING PROPERTIES

Very easy to work and produces very good results in all operations. Wood tension zones, when present, are likely to produce fuzzy or torn surfaces in planing operations. Easy to finish and takes an excellent polish. Easy to cut and peel into thin veneer.




### STRENGHT AND DURABILITY

Moderately dense. Strength properties similar to paper birch and black cherry. Durable heartwood resistant to brown and white rot fungi and moderately resistant to dry wood termites (durability class 2 according to DIN EN 350). Low resistance to attack by marine borers.

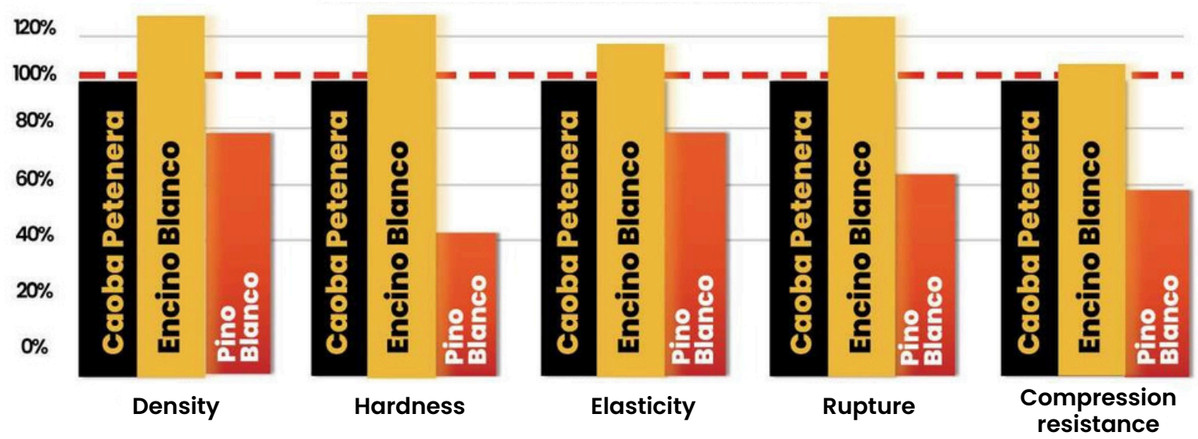
### ECOLOGICAL AND SOCIAL IMPORTANCE

Its English name is derived from indigenous Brazilian word mogno. In the 16th century, the Spanish discovered that mahogany was a superior wood for shipbuilding. It resisted decay in tropical waters and had the advantage of not splintering when hit by cannonballs, nor splintering or injuring sailors with wooden shrapnel. When the English defeated the Spanish Armada in the 16th century, they seized the Spanish fleet, which was built primarily of mahogany. The indigenous people of Alta Verapaz use a decoction of the bitter bark of mahogany to treat intermittent fevers. The species wide distribution may be due to hurricanes, floods, and human disturbances that have allowed it to thrive by opening up large tracts of forest for pioneer regeneration. After centuries of overexploitation, it is listed as threatened on CITES Appendix ll.

### USES OF WOOD

Kitchens · Furniture · Doors and Windows · Sculptures

### MECHANICAL AND PHYSICAL PROPERTIES



# CANXÁN

769 Kg/m³

**NARGUSTA**

## APPEARANCE OF WOOD

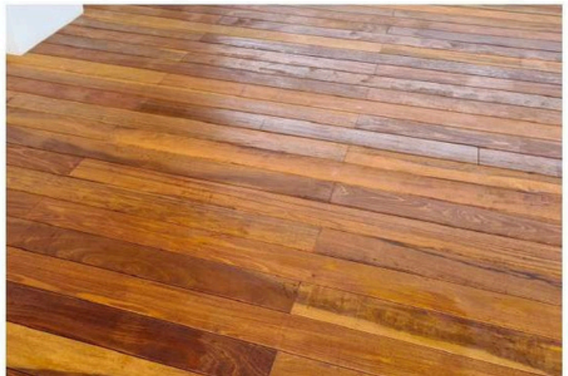
The hardwood is yellowish mamen or olive yellowish, sometimes with prominent greyish brown veins at widely spaced intervals, high brilliance, medium texture, interlaced veining of the irregularities in the veining producing a striped to wavy figure in the quartered walls.


## TREE SHAPE AND DISTRIBUTION

It is prevalent in southern Mexico and Central America to the Guyanas, Trininidad, Brazil and Peru. Among the most common broadleaves of Izabal, concentrations of up to 10 to 12 trees per hectare are observed. It is often found in humid slopes and flat terrain. The trees grow up to 50 meters tall with cylindrical trunks that often exceed one meter, often free of branches up to 20 meters. The tree loses its leaves briefly during the dry season. It often develops large buttresses, especially when growing in swampy areas. It grows on a wide variety of soil types, including red lateritic soil derived from volcanic material, but reaches its greatest height on clay soils. Among the fastest growing among the 10 planted species studied.

## PROCESSING PROPERTIES

Working qualities comparable to beech (Fagus spp). Straight-grained material planes, shapes, drills, notches and saws cleanly, cuts well. Grain lifting may occur when planing with interlocking material. Fairly to moderately difficult to work with hand and machine tools. Heartwood resistant to conservation treatments.
Stellite-point blades and tungsten carbide cutting tools recommended. Nails well but pre-drilling necessary. Easy to glue, stains and polishes easily to an attractive, high-gloss finish. Kiln dries slowly, with little warping, but a marked tendency to split and crack.




## STRENGHT AND DURABILITY

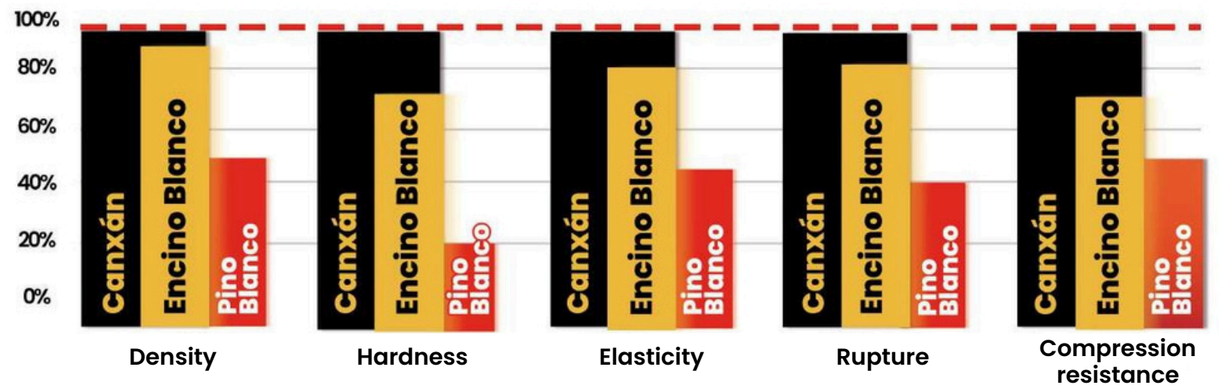
Hard and dense with good mechanical and physical properties. Moderate shrinkage given its density. Moderately resistant to fungal and termite attack, but susceptible to marine borers. Durable to both white-rot and brown-rot fungi. Static flexural and shock strength and compressive strength along the grain, are appreciably stronger than white oak, for which it is a capable substitute, by about 30%. Responds to atmospheric changes with only moderate movement.

## USES OF WOOD

### ECOLOGICAL AND SOCIAL IMPORTANCE

Nargusta is rich in tannins and has been used locally to cure cowhide.


## MECHANICAL AND PHYSICAL PROPERTIES



# MALERIO

MYLADY

785 Kg/m³

## APPEARANCE OF WOOD

Bright orange-red to reddish brown when freshly cut, becoming light pinkish brown or pale yellowish brown. The sapwood is yellowish and not clearly differentiated from heartwood, The grain is straight to irregular, with a medium uniform texture and a strong luster.


## TREE SHAPE AND DISTRIBUTION

Widely distributed throughout most of tropical America from Mexico, Central America and in the high humid forests of the Amazon. In Guatemala, it occurs in dense, dry forests or in riverbed forests. On karst soils it occurs with a frequency of up to 9 trees per hectare. The trees have a large canopy, up to 35 metres tall with dimeters reaching up to one metre, although more commonly 50 cm. The trunk is straight and generally free of branches for more than two-thirds of its height.

## PROCESSING PROPERTIES

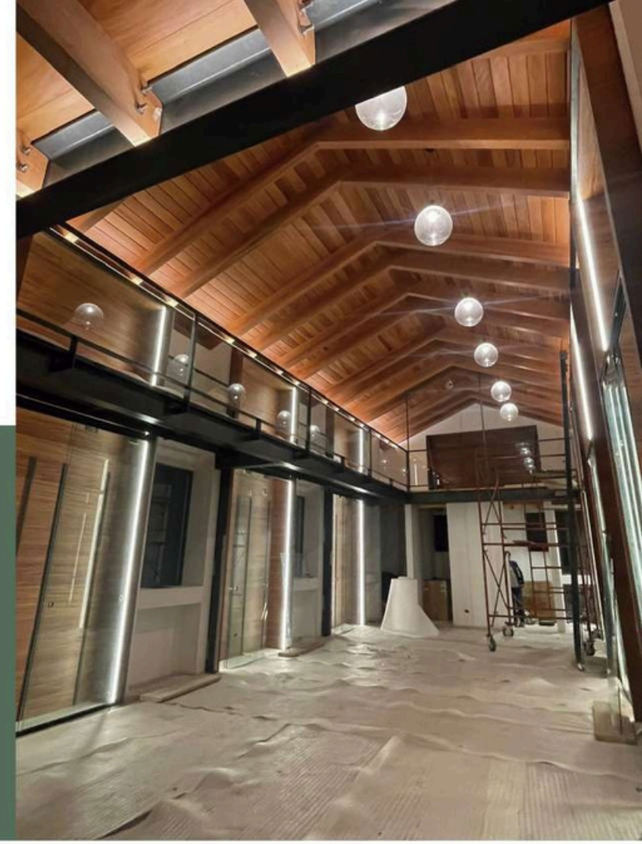
Machines well in al operations, has a smooth finish, and takes a high polish. Sawing, planing, and sanding were reported as easy and with good results. Stellite or tungsten carbide tipped tools are recommended. Turns and carves well. Takes a good polish. Splits moderately well and has good screwing characteristics. Nailing difficult so pre-drilling is recommended. Dries with little distortion or splitting. Moderate shrinkage. Good dimensional stability.

## STRENGHT AND DURABILITY

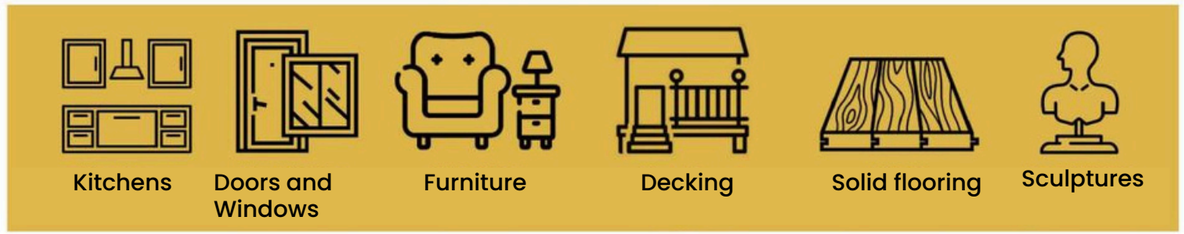
Greater elasticity and strength than American beech, yellow birch, white ash, maple, and withe oak. Heartwood is resistant to white and brown rot fungi (Class 1 according to EN standards) and dry wood borer. High lateral hardness. Durable in soil and in contact with fresh water. Class 4 in contact with soil or fresh water.

## ECOLOGICAL AND SOCIAL IMPORTANCE

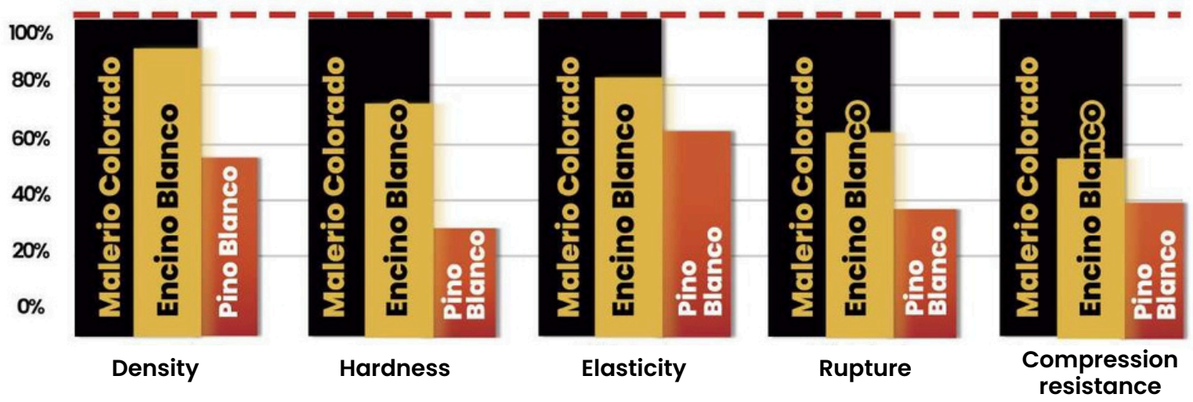
A highly prized commercial species in Peru and Ecuador. Due to excessive logging and biennal seed production, it is unlikely to regenerate faster than the rate of extraction and has been proposed as a candidate for reforestation in sensitive watershed areas to ensure stable stocks. The tree releases flying saucer-like seeds into the air from pods that can travel up to a kilometre before touching the forest floor.



## USES OF WOOD




## MECHANICAL AND PHYSICAL PROPERTIES



# MAN CHI CHE

910 Kg/m³

## MAYAN CHERRY

### APPEARANCE OF WOOD

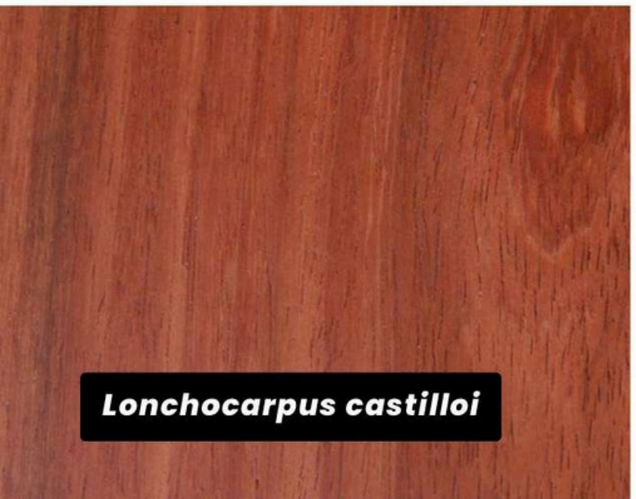
Heartwood varies from creamy brown to dark reddish brown, often with fine bands of lighter color. Sapwood clearly differentiated from core, brownish-yellow, about 1" wide. Moderately coarse texture with low to medium luster. Straight grain to interlocked grain. Tangentially sawn surfaces may produce an attractive striated figure alternating between darker and lighter fibers. Said to resemble Burmese Paduak. Grain lines reminiscent of Rosewood (Dalbergia stevensonii).

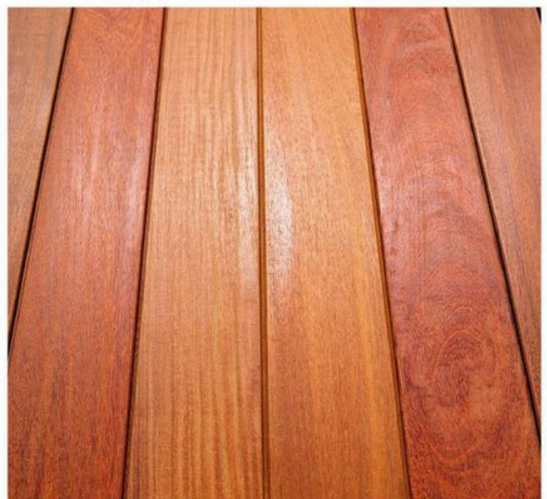
### TREE SHAPE AND DISTRIBUTION

It is found in tropical Mexico, Central America and te Caribbean, particularly in tall and medium semi-deciduous forests, often on open hillside plains at low to moderate elevations. It thrives on well-drained calcareous soils. Within Guatemala it is found primarily in Peten and to a lesser extent in Alta Verapaz, Quiche and Izabal. Manchiche is a nitrogen fixer and often regenerates densely in areas where the forest has been disturbed due to heavy planting. Trees reach up to 30 metres with trunk diameters up to 100cm and clear trunks more than half the height of the tree. The deep purple flowers are borne in large, showy panicles.

### PROCESSING PROPERTIES

Despite its hardness, it is somewhat easy to work with power tools and has a low silica content. Sanding, turning, and planing can be difficult due to its interlocked grain. Stellite and tungsten carbide tipped implements are recommended. Drills fairly easy with very clean holes. Turns well. Nails difficult; pre-drilling recommended. Cutting is good. Needs a good polish. Seasons well with little degradation. Good stability.



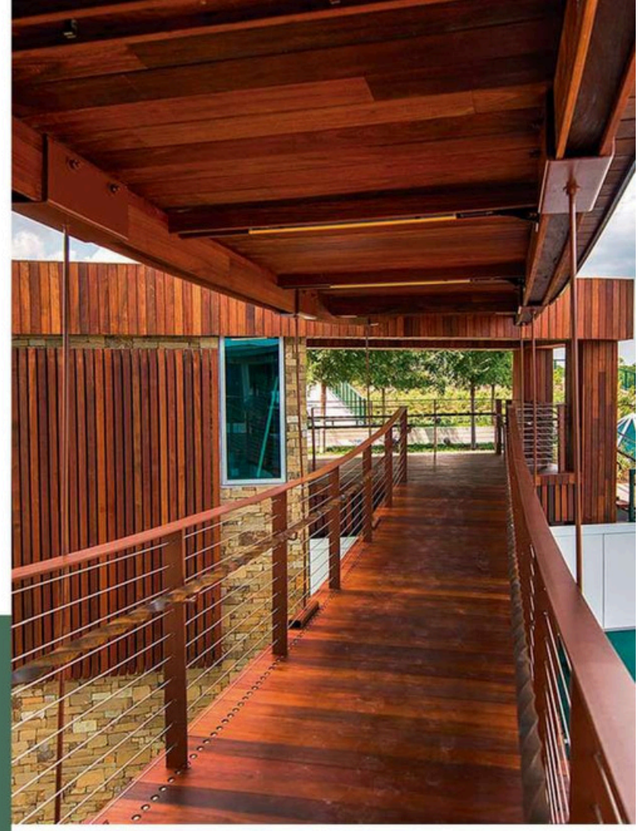



### STRENGHT AND DURABILITY

The wood is reported to be highly resistant to fungi (EN Class 1) and to attack by dry borers and termites (EN Class D). Very durable in contact with soil (EN Class 4 in contact with soil or fresh water), moderately resistant to marine borers. Covers EN Use Class 5 (final uses in marine or brackish water environments) due to its high specific weight and content of repulsive extractives. Hardness and resistance to gradually applied and impact loads superior to that of Greenheart (Ocotea rodiei). Flame spread classification Class A (QUA Laboratories).

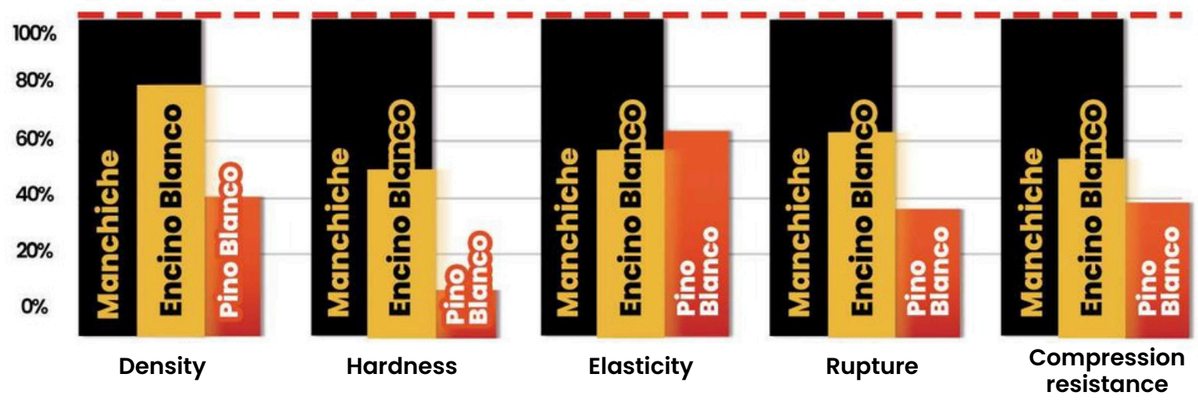
### ECOLOGICAL AND SOCIAL IMPORTANCE

A natural insecticide called rotenone can be derived from its bark. Non-selective in action and rapidly biodegrading, rotenone has been shown to kill potato beetles, cucumber beetles, flea beetles, cabbage worms, raspberry and asparagus beetles, and many other arthropods. It can treat scabies and lice in humans. It is speculated that the ancient Mayans used components of trees of the genus to produce an intoxicating drink. In colonial times, the main use of the wood was in the construction of carts for transporting mahogany.



### USES OF WOOD


### MECHANICAL AND PHYSICAL PROPERTIES



# MANO DE LEÓN

496 Kg/m³

## PALO BLANCO PETENERO

### APPEARANCE OF WOOD

Cream to greyish yellow in colour. Straight grain; medium to uniform texture; low to medium gloss. No colour differentiation between heartwood and sapwood. Substitute for basswood (Tilia americana) and yellow poplar (Liriodendron tulipfera).

*Dendropanax arboreus*

### TREE SHAPE AND DISTRIBUTION

Common and widespread in tropical America, from Mexico south to Colombia, Venezuela, Peru and Bolivia, as well as the West indies. It thrives on rocky soils, on hillsides, in grasslands, in wetlands and along water courses. The tree reaches a height of 30 metres and a trunk diameter of 80 cm.

### PROCESSING PROPERTIES

Saws and shapes easily and well. Planes easily but may develop woolly grain. Straight grain and firm texture make it suitable and easy for veneering. Air dries quickly. Drills cleanly. Nails and screws easily and holds nails well. Leaves a good finish. Moderate dimensional movement.

### STRENGHT AND DURABILITY

Moderately hard, slightly less so than Honduran mahogany. Moderately susceptible to fungal and insect attacks. Easy to treat with pressure-vacuum systems that achieve complete penetration and absorption.

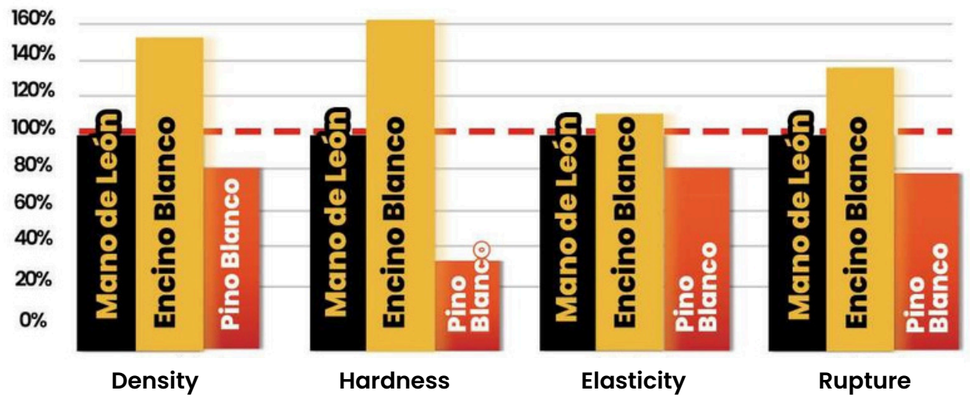
### ECOLOGICAL AND SOCIAL IMPORTANCE

It is a fast-growing tree used for shade in coffee plantations. A tea made from a decoration of the leaves is used for medicinal purposes. It produces dark purple fruits between July and August. The wood is comparable to basswood: its neutral color and lack of distinctive figure make it a blank canvas, ideal for staining, carving, and light applications such as shutters and electric guitar frames.

### USES OF WOOD

Kitchens · Furniture · Doors and Windows · Sculptures

### MECHANICAL AND PHYSICAL PROPERTIES



# RAMÓN BLANCO

**BREADNUT TREE**

849 Kg/m³

## APPEARANCE OF WOOD

Yellowish white or beige without strong demarcation between sapwood and heartwood. May present reddish veins in its heartwood. Straight to slightly interlaced grain. Fine to medium texture. Arches, stripes and bands with a medium to high gloss golden sheen and sometimes overlapping. In international markets, ramon is considered a substitute for ramin (Gonystylus bancanus), included in CITES Appendix II as threatened, as well as sugar maple (Acer saccharum).

## TREE SHAPE AND DISTRIBUTION

It is found from southern Mexico through Central America to Colombia, Venezuela, Ecuador, Peru and Brazil, as well as Cuba and Jamaica. The tree reaches height of over 40 metres and trunk diameters of 1.5 metres. Cylindrical and straight trunk. In Yucatan it grows in calcareous soils with rock outcrops. Distributed in more humid sections of dry tropical forest, such as river canyons, as well as in humid tropical and premontane forests up to 800 metres above sea level.

## PROCESSING PROPERTIES

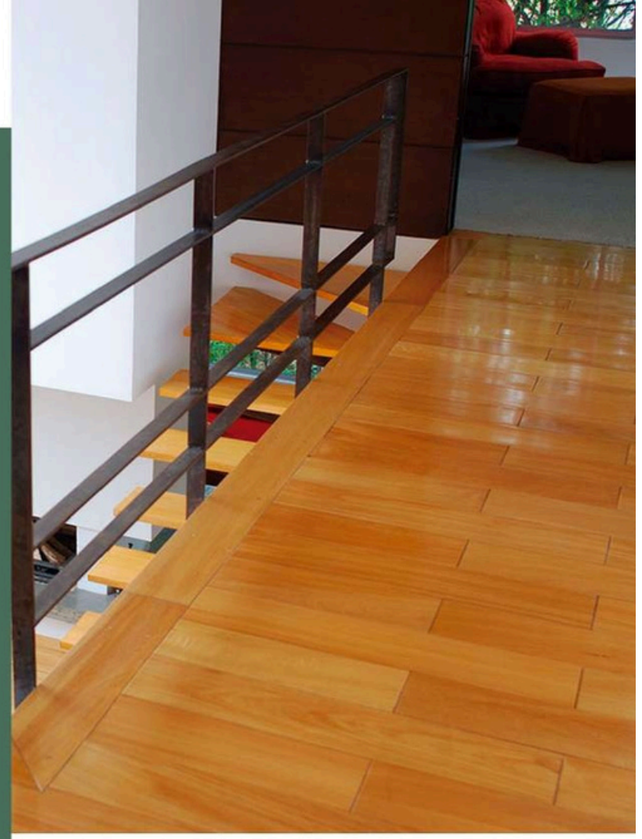
Saws well. Produces a beautiful finish and polishes well. Figured wood cuts without difficulty for face veneer. Fairly easy to machine and finishes well, but requires suitable cutting tools (i.e. tungsten carbide tipped) due to silica content of up to 0.68%. Glues well with commercial white glue. Requires pre-drilling. Very easy to polish. Accepts varnish well. Easily treated with standard preparations.

## STRENGHT AND DURABILITY

A heavy, dense wood with good stability due to low internal fibre tension. Able to withstand heavy loads. High flexural strength values. Starch common throughout. As much, natural durability is low due to vulnerability to fungi and insects. Penetration with boric acid (2000-2500ppm) by immersion effective as is pressure treatment.

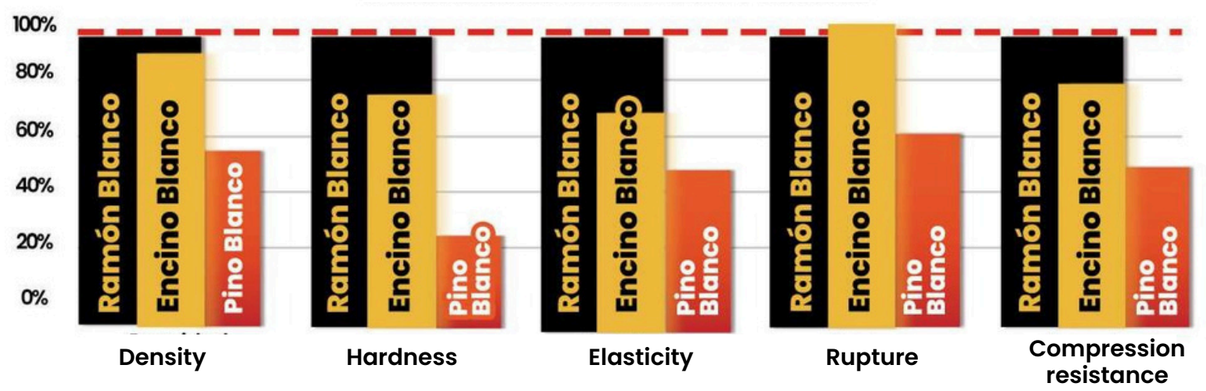

## ECOLOGICAL AND SOCIAL IMPORTANCE

The tree was important to the Mayans, who boiled or roasted and consumed its seed, which is high in starch, fat, vitamins A and C and mineral content, leading to its name Mayanut or nut bread. It is called iximche in some Mayan languages, which literally means corn tree, reflecting its importance, especially in times of food shortage. The ancient Maya cultivated it enthusiastically and it is still found in high concentrations around ancient Mayan settlements. One tree can produce around 29 kg of seeds and some forests have up to 125 trees per hectare. Ramon sap is edible, has a pleasant taste and can be made into a nutritious vegetable milk. The leaves and sap are used to stimulate the production of breast milk. The sap is rich in alkaloids, strong chemicals that can be effective in fighting disease. Ramon leaves remain green during the dry season and are an important source of fodder for cattle, pigs and chickens. They contain around 13% protein, rich in the amino acids lysine, arginine, tryptophan and valine. Cows fed with Ramon leaves increased milk production by 15 to 20%.



## USES OF WOOD


## MECHANICAL AND PHYSICAL PROPERTIES



# SM

## SANTA MARIA

641 Kg/m³

### TREE SHAPE AND DISTRIBUTION

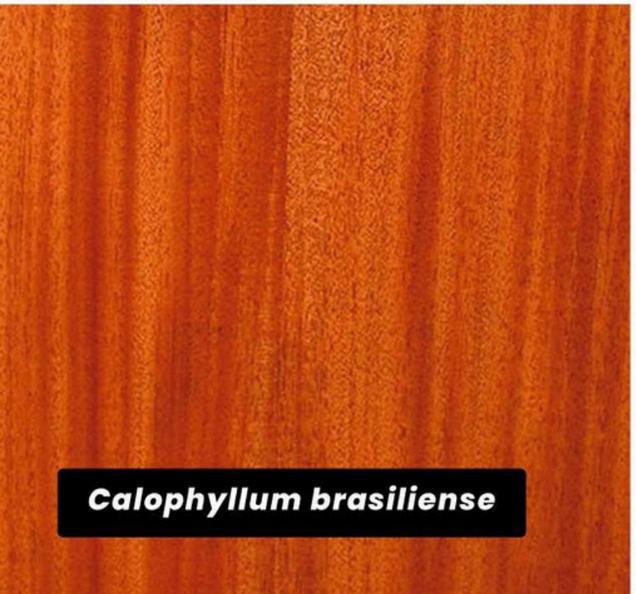
The Santa Maria tree's territory extends from southern Mexico through all of Central America to northern Amazon and is found in the Antilles. It can reach heights of 50 metres with trunk diameters of 1.8 metres. It thrives in soils rich in aluminium and iron and in moist, even marshy terrain, and is often seen growing in lowlands and along rivers, but grows very well in pure sand and rocky sandstone soils in dry areas. It is found up to 1,170 metres in height. The trunk is straight and popped up. Due to the excellent quality of its wood, the species is used in plantations.

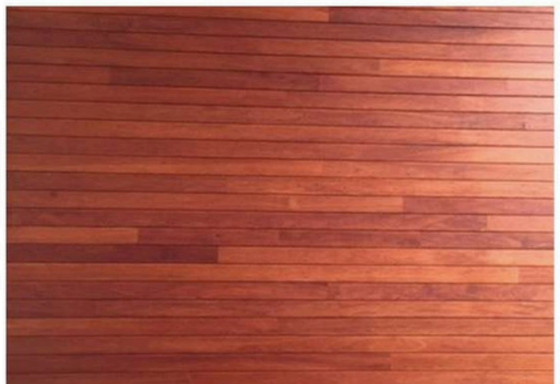
### APPEARANCE OF WOOD

Pink to brick-red to reddish brown, sometimes with darker veining and figure. High gloss and golden hue. Logs exhibit a gradual transition from sapwood, which is pink, to heartwood, a reddish nut. Veneer radius-cut or often cut with a ribbon figure. Medium, fairly uniform texture. Grain usually interlocked. Heartwood is quite similar in appearance to dark red meranti (Shorea spp), and may substitute for mahogany (Swietenia machophylla).

### PROCESSING PROPERTIES

Easy to mill and cut. Flat sawn boards prone to warping, which is avoided by quarter sawing. Sands easily although the presence of resin may have a dulling effect on equipment. Machining and cutting are easily accomplished. Moisture of 6-7% is recommended for machining, as is a reduction in cutting angle to 15-20° and machine speeds producing 20 or more knife cuts per inch to prevent tearing. Glues well. Stains and finishes well when pore filler is used. Pre-drilling is recommended. Good dimensional stability when properly dried, comparable to Honduran mahogany, Douglas fir, English oak and Scotch pine. Difficult to impregnate. A furniture test showed the wood had good "bearing" qualities during manufacturing and final assembly with labor costs similar to birch, maple, African mahogany or pine.



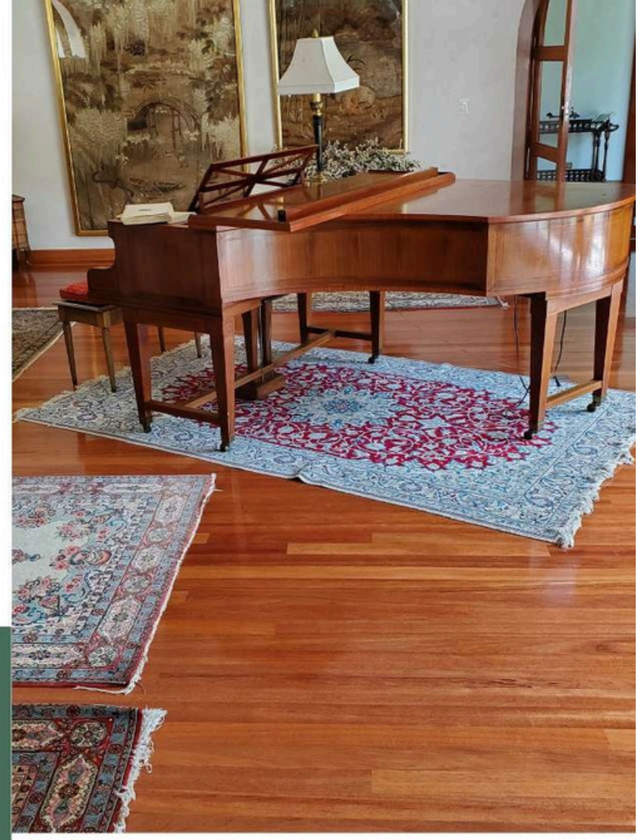



### STRENGHT AND DURABILITY

The wood is moderately heavy, strong and resistant to white and brown rot and somewhat durable in contact with soil. It is not readily attacked by termites but is susceptible to marine borers. It can withstand medium weight loads. Sugar maple (Acer saccharum) density class and strength properties are generally similar. Under air-dried conditions it compares favorably with white oak, surpassing it in stiffness, crushing and hardness.

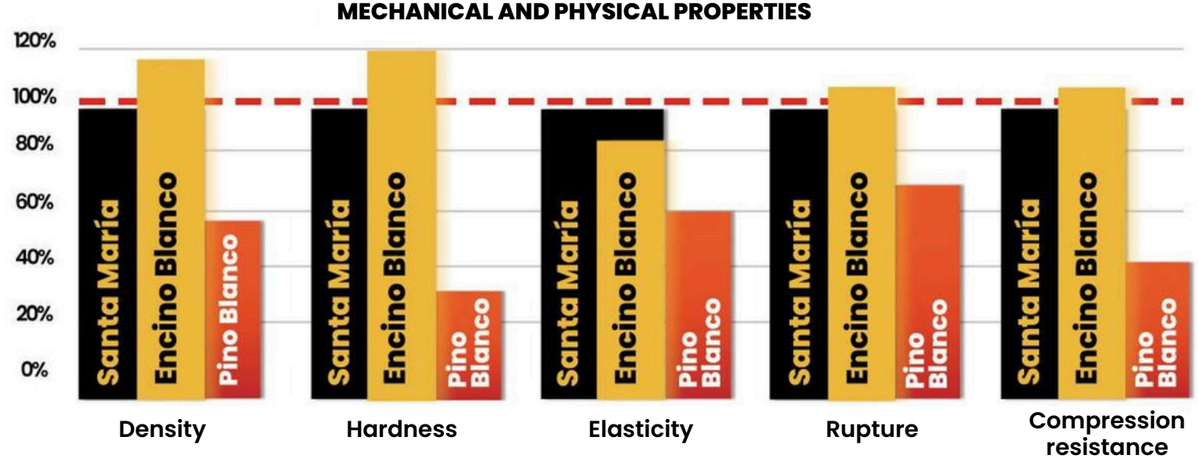
### ECOLOGICAL AND SOCIAL IMPORTANCE

Several local names refer to the wood sap ("oil" or "milk"), a yellow gummy resin that exudes from cut bark. This latex is used to reduce fever communities. It is also used as an air freshener. The leaves are said to possess anti-inflammatory properties. In Peten, Guatemala, it is applied as a liniment to the area around the spleen to reduce swelling. The bark produces an excellent deep brown dye. Because of its beauty, the tree is sometimes used for ornamental purposes.



### USES OF WOOD


### MECHANICAL AND PHYSICAL PROPERTIES



# SAN JUAN

397 Kg/m³

## YEMERI

### APPEARANCE OF WOOD

When freshly cut, the heartwood turns red, becoming a uniform pale golden brown or pinkish brown as the wood dries. Shows a widely spaced striped pattern on quarter-cut surfaces. Moderate to high luster. Grain coarse and somewhat fibrous, straight to slightly interlocked. Similar in appearance to cedar (Cedrela Odorata). In Peru, it is known as cedrillo because of the similarities.

### TREE SHAPE AND DISTRIBUTION

Its territory extends from southern Mexico to Peru in areas up to 700 meters high. With green foliage all year round. Common in alluvial or eroded lateritic soils of volcanic origin. The trees have their greatest growth in coastal plains and along water courses. It often occurs in pure stands when it is allowed to regenerate in abandoned pastures. It is easily identified by its straight, cylindrical trunk and its white and yellow flowers. It reaches heights of up to 50 meters and diameters of up to 150 centimetes. About 1,000 hectares of plantation were registered in Guatemala in 2015.

### PROCESSING PROPERTIES

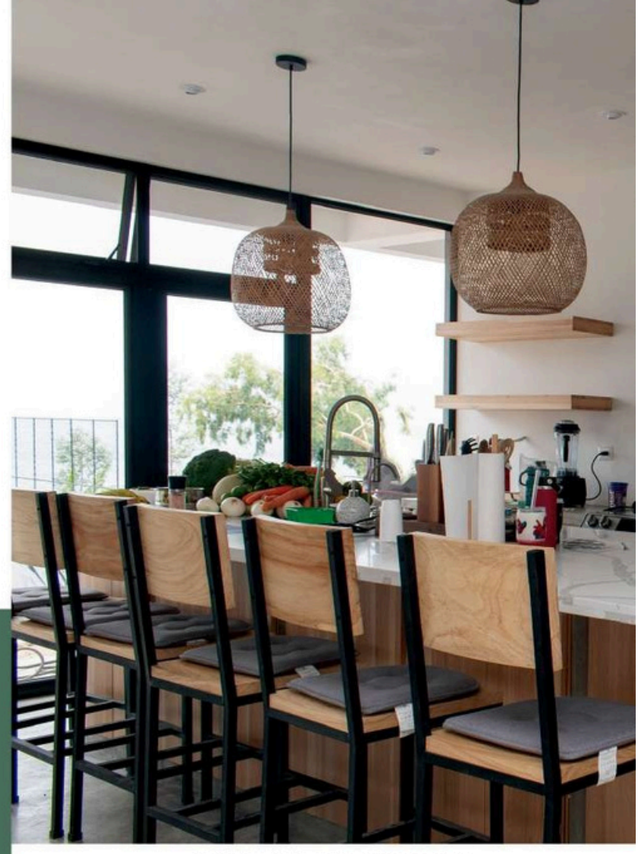
Easily worked by hand and with machine tools. Takes glue, paint and nails well and polishes toa a good finish (a pore sealer is recommended). May dull due to high silica content. Easy to sand and brush although grain may become woolly. Peels well for veneer. Dries quickly with little tendency to split or crack. Wood may be treated with boron salts for preservation against temporary moisture and to extend life.


### STRENGHT AND DURABILITY

Light to medium density, medium hardness, and fairly strong. Good dimensional stability (radial movement in service is half that of maple, with oak, and yellow poplar). Moderately resistant to rot and insects. Cannot be left exposed to moist climates but can withstand temporary moisture. In the density range of European redwood, poplar, and eastern white pine, and comparable in most strength properties except hardness and resistance to cracking, where San Juan is appreciably superior. Both heartwood and sapwood are readily impregnated with preservatives.

### ECOLOGICAL AND SOCIAL IMPORTANCE

The dried and ground leaves of San Juan have been used as an adhesive for natural dyes for fabrics. In Guatemala and Costa Rica it is frequently used as a plantation species due to its rapid growth and uniform stem. An excellent species for improving degraded soils as it is tolerant of aluminium in the soil and can improve organic material quickly.



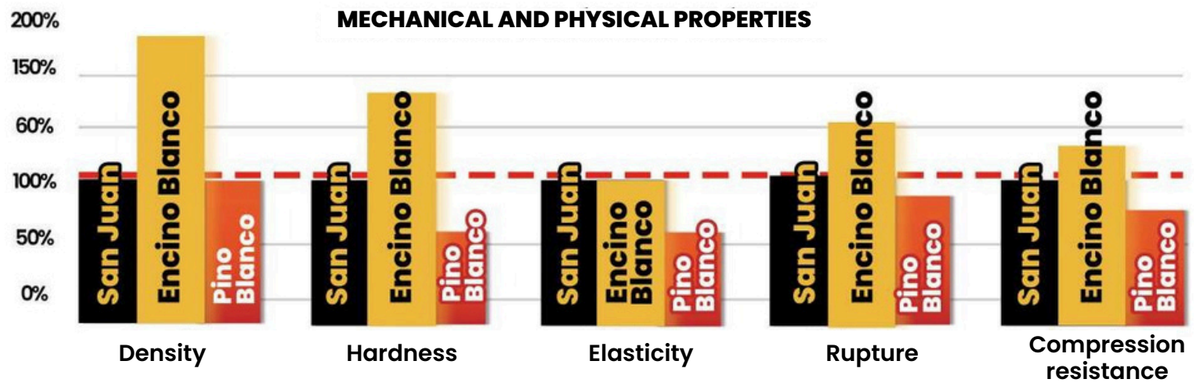
### USES OF WOOD


Kitchens


Furniture


Doors and Windows

### MECHANICAL AND PHYSICAL PROPERTIES



# TZALAM

753 Kg/m³

**CARIBBEAN WALNUT**

## APPEARANCE OF WOOD

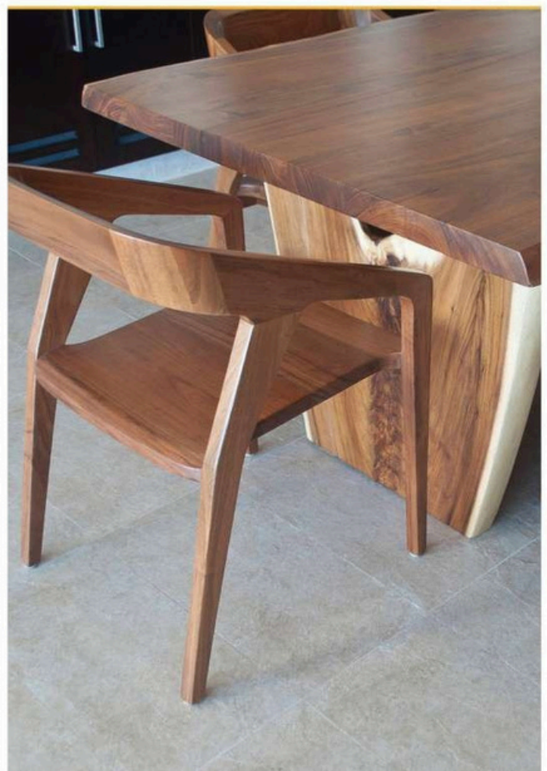
Heartwood bright walnut brown with a copper or purplish tint, finely striped grain pattern, distinct from the cream-colored sapwood. Fine white sapwood clearly demarcated. Texture is medium and grain is straight interwoven. Comparable appearance to koa and black walnut.

## TREE SHAPE AND DISTRIBUTION

Southern Mexico, Guatemala, Belize, southern Florida and Cuba, Haiti, Bahamas. It thrives in calcareous soils and is often found near lakes and streams. A spreading tree with a rather short trunk that reaches up to 15 meters in height and 75 cm in diameter; free of branches up to 7 meters. Whitish flowers.

## PROCESSING PROPERTIES

Easily sawn, planed, shaped, sanded and machined with good results. Good nailing, screwing and splitting properties. Considered easy to work with low silica content, has a smooth finish and high natural gloss. Due to density, tungsten carbide tipped implements are recommended. Glues well. Requires pre-drilling. Should be seasoned slowly to prevent splitting at ends. Wood dust may cause skin and mucous membrane irritation.

## STRENGHT AND DURABILITY

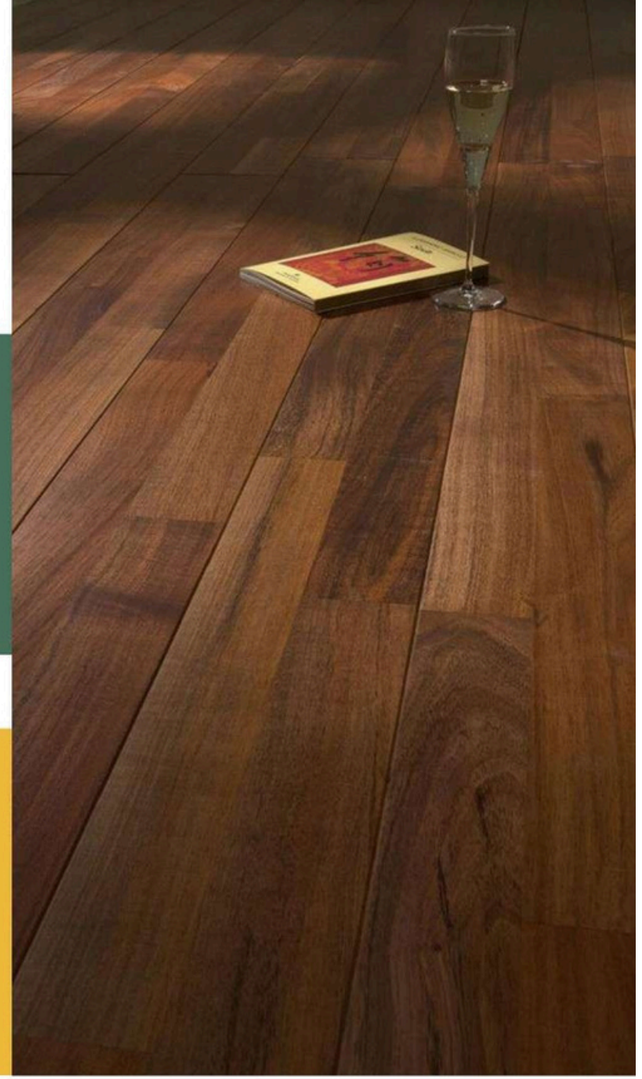
Heavy. Heartwood classified as highly durable against decay and wood borers. Not resistant to marine borers.

## ECOLOGICAL AND SOCIAL IMPORTANCE

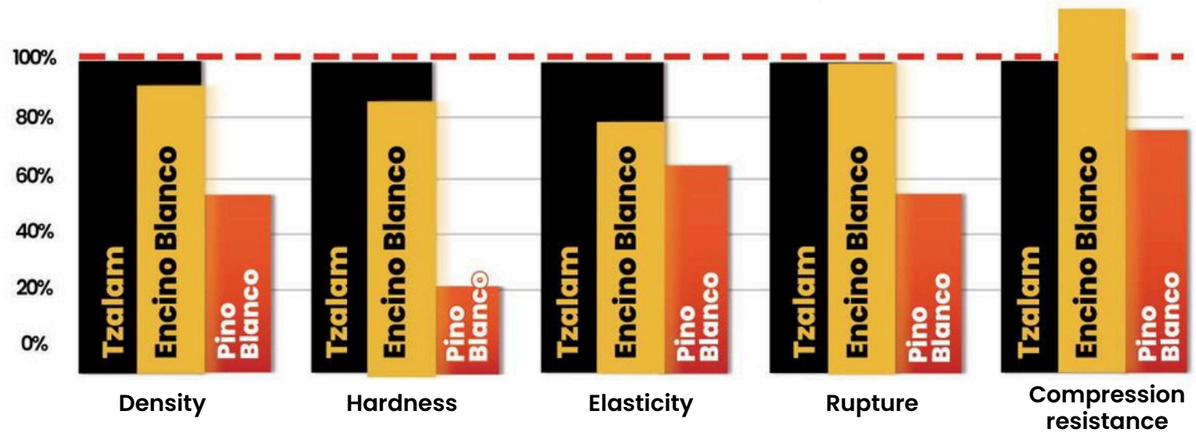
In Haití, a poultice is made from the leaves to treat skin infections. Its fragant reddish flowers produce nectar that yields a dark amber-colored honey. An ideal plant for shade, parks and beaches with decorative purposes. It was once widely used in shipbuilding

## USES OF WOOD

- Doors and Windows
- Kitchens
- Furniture
- Solid flooring



## MECHANICAL AND PHYSICAL PROPERTIES



# TECA

624 Kg/m³

## TEAK

### APPEARANCE OF WOOD

Heartwood dark golden yellow, turning dark brown on exposure, often varying in colour when freshly machined with spots and streaks. Sapwood pale yellowish, sharply demarcated. Grain straight, sometimes wavy and coarse in texture. Occasional mottled figure. Distinctly oily feel. Silica content is variable, up to 1.4%. Plantation teak material is younger and therefore smaller in diameter than Myanmar teak. Sapwood content may be higher, depending on age and site.

### TREE SHAPE AND DISTRIBUTION

Originaria de India, Myanmar, Tailandia, Laos y Camboya, ahora se cultiva ampliamente en plantaciones en toda Asia tropical, África y América Latina. En sitios favorables, los árboles pueden alcanzar alturas de 40 a 45 m con troncos claros de hasta 25 m. Los troncos pueden alcanzar los 120 cm de diámetro, desarrollando flautas y contrafuertes con la edad. Sus hojas gigantes miden hasta 20" de largo y 14" de ancho.

### PROCESSING PROPERTIES

Easily worked with both hand and machine tools. Achieves a very smooth finish. Machining is good, although tungsten carbide implements are indicated. Tears, cuts, and burrs more easily than red oak. Glues moderately well despite its oily nature. Stains poorly. Plastic-based finishes should be avoided. Accepts screws and nails well, but pre-drilling is recommended. Because of its silica content, dulling of cutters is common. Overall shrinkage is exceptionally small after kiln drying.

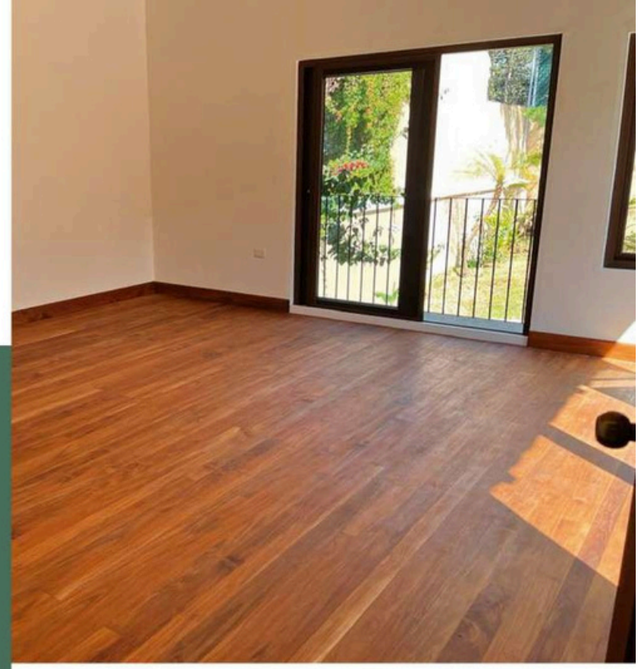
### STRENGHT AND DURABILITY

Hardiness such as White oak. High oil content makes the wood an excellent exterior wood. Heartwood very durable against decay fungi and termites; somewhat resistant to marine borers.


Sapwood is not durable. Very good dimensional stability, it holds its shape well and makes it attractive for shipbuilding and other uses requiring tight tolerances. It does not rust or corrode when in contact with metal. Sometimes a treatment is applied to the young material to bring the sapwood back to life.

### ECOLOGICAL AND SOCIAL IMPORTANCE

Teak was one of the first tropical hardwoods to be selected and propagated. It was thought to have been first planted in the Indonesian archipelago on the islands of Madura and Sulawesi some 300-400 years ago and is now considered a naturalised species in Indonesia. In Burma, a smallholder system known as taungya, based on interplanting teak and food crops, was adopted as early as the 1850s. Intensive teak plantations gradually expanded throughout the tropics when the species was introduced into Africa (Nigeria) in 1902 and the Americas (Trinidad) in 1913. An estimated 5.7 million hectares of teak had been planted worldwide by 2000. Extraction in natural forests has become increasingly restricted in Myanmar. Old teak from Myanmar and Indonesia has not been found to be denser than plantation teak from Trinidad and Honduras (around 650 kg/m3), although the quality of the first one is generally preferred.



### USES OF WOOD


Decking


Solid flooring

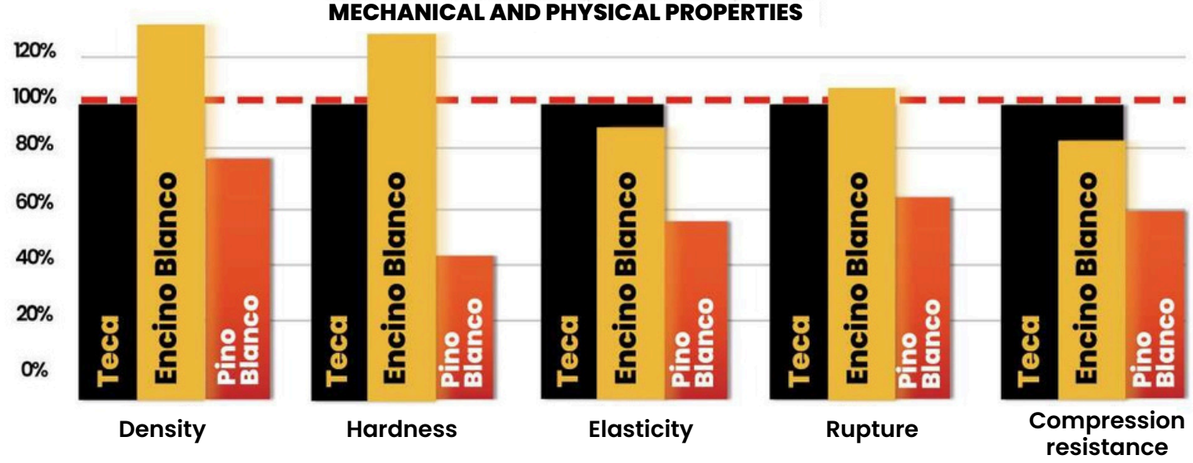

Sculptures


Kitchens


Furniture


Doors and Windows

### MECHANICAL AND PHYSICAL PROPERTIES



# PUCTÉ

## CARIBBEAN IPE

**1,020** Kg/m³

### APPEARANCE OF WOOD

Heartwood varies from yellowish to greenish brown with an olive hue, often with attractive longitudinal stripes resulting from the interlocking grain. White sapwood, about 2 inches wide, well differentiated from the heart. Medium to fine texture. Very lustrous, almost crystalline. Freshly cut wood has a tarry odor that disappears after drying.

### TREE SHAPE AND DISTRIBUTION

Its range extends from southern Mexico through Panama to Colombia and Venezuela, as well as the Florida Keys, Bahamas, Cuba, Jamaica, Hispaniola, Puerto Rico, the Virgin Islands and parts of the Lesser Antilles. Salt tolerant, it grows well in coastal swamps and on drier limestone soils, developing and extensive root system that anchors the soil. A medium to large tree reaching over 35 metres tall with diameters over 100 cm. Straight, clear trunk to about half the total height of the tree.

### PROCESSING PROPERTIES

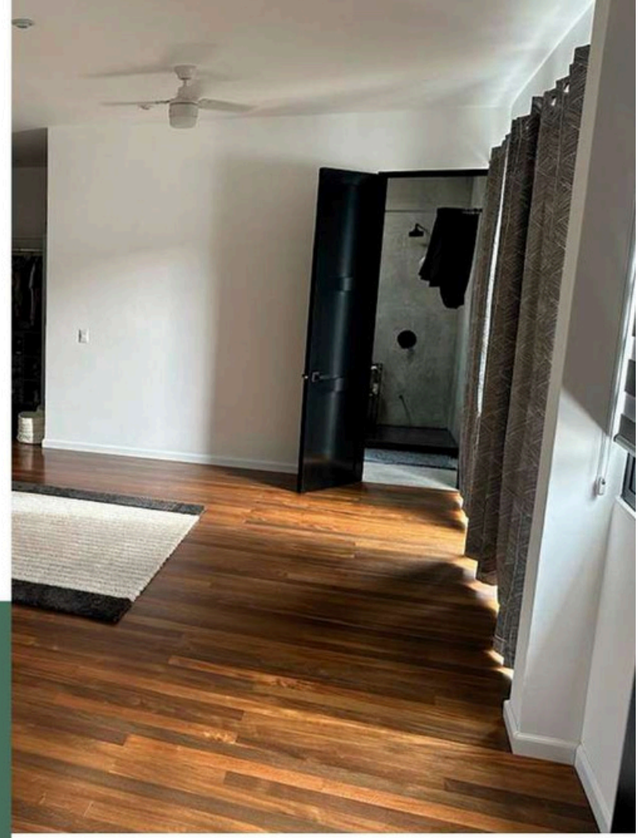
Fairly difficult to saw and machine with hand and power tools due to high density (stellite or tungsten carbide tipped cutters recommended). Planing is adequate. Turning, sanding and drilling are excellent. Slices well. Screw breaking strength is poor and pre-drilling is recommended. Produces very smooth finishes.


### STRENGHT AND DURABILITY

Very hard, heavy, strong and resilient. Due to its high density and silica content, high resistance to drywood termites and durable in contact with the ground. Designated as very resistant to fungi, drywood borer and termites and natural durability. Susceptible to teredo marine borers. Strenght similar to greenheart (Ocotea rodiaei).

### ECOLOGICAL AND SOCIAL IMPORTANCE

Pucte was used as material for the beach pedestrian pier at Coney Island in New York City, and lasted 25 years before it needed to be replaced. In Haiti, a decoction of the bark and leaves is taken for fever. The bark is high in tannins and has been used for tanning. The tree is resistant to environmental pollution and saline conditions, and grows in poor soils, including landfills.



### USES OF WOOD


### MECHANICAL AND PHYSICAL PROPERTIES