

# Database of Wood for Ship-Modellers

by Harry Dunn and edited by the NRG Staff

## Disclaimer.

The information and pictures of the various species of wood are obtained from a number of web sites, both commercial and governmental.

**Alaskan Yellow Cedar:** Common Name(s): Alaskan Yellow Cedar, Nootka Cypress

**Botanical Name:** Cupressus nootkatensis

**Color:** Heartwood is a light yellow. Sapwood is a similar whitish/pale yellow and is not distinct from the heartwood. Color tends to darken with age upon exposure to light (when left exposed outdoors it weathers to a uniform gray).

**Description:** Easy to work with both hand and machine tools, though pieces with wavy grain may produce tear-out during planing. Holds paint well. Stains, glues, and finishes well. Although severe reactions are quite uncommon, Alaskan Yellow Cedar has been reported to cause skin irritation.

**Comments:** Alaskan Yellow Cedar has always had the species label nootkatensis (so named for the Nuu-chah-nulth people of Canada) but the genus of the tree has been less clearly defined—it's perhaps one of the woods with the most often-changed and reclassified botanical name.



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**Apple :** Common Name(s): Apple, Crab Apple, Wild Apple.

**Botanical Name :** Malus domestica

**Color :** Varies in color from light cream sapwood to a pale to medium pinkish brown

**Description :** Excellent wood for carving, milling and turning. The wood will hold a clean sharp edge and finishes to a smooth polished surface. Apple is strong and flexible, suitable for bending.

**Use:** Because of this wood's versatility it is one of the top choices among model builders. Apple is suitable for natural curved timbers. The wood can be used for all aspects of model work, from fine fittings to delicate turned items and carvings to hull timbering. Excellent for bent or built-up frames, deck equipment, blocks, and deadeyes. The cream colour of the sapwood makes nice planking.



Apple (plain)



Apple (treated)

## **Balsa :**

**Botanical Name:** Ochroma pyramidale

**Color:** White to pinkish-white

**Description :** A straight grained, coarse textured wood, which is very soft, lightweight and spongy. When cut, it has a tendency to crumble and does not hold a clean, sharp edge. It does not give a smooth finish nor does it hold pins or screws very well. Extremely sharp tools are required to cut it and it dents under finger pressure. This wood is at the top of the "don't use" list, as it cannot be worked accurately in even the largest scales.

**Uses :** Possibly the easiest wood to cut, shape and sand. Not suitable for steam bending. Finishes fairly well but porous composition soaks up glue finish. Use for filler blocks but has no other use for ship models.



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**Basswood :** Common Name(s): Whitewood, American Basswood, Lime, Linden

**Botanical Name :** Tilia americana

**Color :** Pale, almost white to creamy white or pale brown, it tends to become more brown with exposure.

**Description:** A straight-grained wood with a uniform texture.

**Properties:** A first class wood for carving with a knife. Not very good for machining as the wood tends to rip or splinter under the pressure of cutting tools. Because Basswood is weak it tends to break when cut into small parts. It has poor steam-bending properties. Sawing produces a woolly surface but it sands easily. Finishing usually requires a sealer.

**Use:** The main use of this wood is cutting the layers for bread and butter solid hull construction or blocks for carving hulls. The ease of carving makes Basswood suitable for the joinery work in deck framing. Usable as deck planking and the first layer of planking in plank on bulkhead hulls or hulls that are going to be painted.



Basswood  
(plain)



Basswood  
(treated)

## **Beech :**

**Color :** Varies between light brown to red-brown and white to pale brown.

**Botanical Name :** *Fagus grandifolia*

**Description:** Beech is a straight but coarse grained wood with a good texture. This wood is affected by humidity plus it is brittle. American Beech is slightly coarser than the European variety.

**Properties:** Beech can take extreme bending and will hold its shape. The wood has a very smooth and hard surface making it suitable for polished finishes. Cuts, sands and machines well. One of the best woods in its ability to hold screws and nails. A strong, hard and dense wood, turns well on a lathe. Workable with hand tools and cuts clean with a knife blade.

**Use:** Very good wood for planking and bent hull timbers such as wales and deck clamps. Makes an attractive wood for framing and hull timbering, also used for treenails.



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**Birch :** Common Name(s): Hard Birch, Betula wood, American Birch.

**Botanical Name :** *Betula papyrifera*

**Color :** Red-brown heartwood and light-yellow sapwood.

**Description:** Straight-grained wood with a fine, even texture and has good strength and bending properties. It is stiff, very hard, and holds a clean edge.

**Properties:** This is an easy wood to work with hand or power tools. Cuts clean and finishes to a smooth surface. The wood is very tough and flexible, once bent it will hold its shape.

**Use:** Its prime use is for framing, hull timbering and bent hull members, although mostly used by ship modellers as plywood. It is commonly used as dowels for masts and spars. Suitable for planking. Sharp tools are required.



**Bloodwood :** Common Name(s): Bloodwood, Satine.

**Botanical Name :** Brosimum rubescens.

**Color:** Heartwood is a bright, vivid red. Color can darken to a darker brownish red over time with exposure to light. Applying a thick protective finish, and keeping the wood out of direct sunlight can help slow this color shift. Well defined sapwood is a pale yellowish color, though given the typically large trunk diameters, it's seldom seen or included in imported lumber.

**Description :** Bloodwood is a dense wood, stiff and brittle. Because of the woods' hardness, working with hand tools or a hand carving is difficult and slow going.

**Properties:** Best sanded gently by hand as power sanding warms up the wood and brings out the natural oils, leading to clogging of the sand paper. Machining and turning properties are excellent. Joinery work can be machined to a clean smooth surface with a crisp sharp edge. Very delicate fittings can be turned on a lathe. It can be brought to a polished, marble like finish. The wood's dust has been reported as occasionally causing effects such as thirst and salivation, as well as nausea. Can also cause skin irritation.



Bloodwood (plain)



Bloodwood (treated)

**Use :** For small fittings and turned items, railings, blocks, moldings, cap rails, trim work and wales, planking for decks and on the inside and outside of the bulwarks.

**Boxwood:** Common Name : European Boxwood

**Botanical Name:** Buxus sempervirens

**Color:** Distinctive cream to yellow color which can darken with exposure to light

**Description:** Fine, evenly textured wood. Dense and heavy and can vary in the straightness of its grain. It carves with great detail although it is relatively hard to cut, even with extremely sharp tools.

**Properties:** Boxwood tends to be somewhat difficult to work in flat dimensions, though it is superbly suited for turning. Tearout can occur on pieces with irregular grain during planing and other machining operations. Boxwood has a slight blunting effect on cutters. Although severe reactions are quite uncommon, Boxwood has been reported as a sensitizer. Usually most common reactions simply include eye, skin, and respiratory irritation.

**Use:** Mainly used for carving, it is a superior wood for modelers, as it retains sharp edges and details to the smallest dimensions.



**Boxwood, Castelo:** Common Name(s): Castelo Boxwood, Ivorywood, Palo Blanco

**Botanical name:** Calycophyllum multiflorum

**Color:** Heartwood is a light brown to pale yellowish color. Sapwood is lighter in color and isn't clearly demarcated from the heartwood.

**Description:** Marketed as an alternative to true European Boxwood (*Buxus sempervirens*), Castelo Boxwood is said to turn very well, and its color and texture is comparable to true boxwood.

**Properties:** Overall working properties are fair, though dry wood is reported to have a high cutting resistance. Castelo boxwood turns, glues, and finishes well. No health concerns have been associated with the use of Castelo boxwood.

**Use:** A very popular, although expensive wood for ship modeling. It can be used for framing, planking and carving.



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**Cherry:** Common Name(s): Black Cherry, American Cherry, English Cherry.

**Botanical Name:** *Prunus serotina*

**Color:** Light to pale reddish-brown colour, which deepens with age.

**Description:** Cherry, like all fruitwoods, is a hard, dense wood, stiff and brittle. It is difficult to work using hand tools or a carving knife. Power sanding tends to clog up the sand paper due to the natural oils in the wood. It is best sanded gently by hand. Excellent machining and turning properties. It can be machined to a clean smooth surface with a crisp sharp edge. Delicate fittings can be turned on a lathe. Can be brought to a polished marble like finish.

**Use:** Small fittings and turned items, railings, blocks, mouldings, cap rails, trim work and wales, planking for decks and on the inside and outside of the bulwarks.



Black Cherry  
(plain)



Black Cherry  
(treated)



English Cherry

**Douglas-Fir:** Common Name(s): Douglas-Fir

**Botanical Name:** *Pseudotsuga menziesii*

**Color:** Can vary in color based upon age and location of tree. Usually a light brown color with a hint of red and/or yellow, with darker growth rings.

**Description:** The tree itself grows to be very large, and yields a large amount of usable lumber and veneer for plywood. It is an incredibly valuable commercial timber, widely used in construction and building purposes.

**Properties:** The wood is very stiff and strong for its weight, and is also among the hardest and heaviest softwoods commercially available in North America.

**Use:** Veneer, plywood, and structural/construction lumber. Not recommended for model building.



**Gaboon Ebony:** Common Name(s): Gaboon Ebony, African Ebony, Nigerian Ebony, Cameroon Ebony

**Scientific Name:** *Diospyros crassiflora*

**Color:** Heartwood is usually jet-black, with little to no variation or visible grain. Occasionally dark brown or grayish-brown streaks may be present.

**Description:** This wood species is listed as endangered. African Blackwood is very similar in density, color, and cost, but is in the *Dalbergia* genus and is not considered a true ebony. Wenge and Katalox are sometimes used as an ebony substitute.

**Properties:** Can be difficult to work due to its extremely high density. Has a dulling effect on cutters. Due to the high oil content found in this wood, it can cause problems with gluing. Finishes well, and polishes to a high luster. Responds well to steam bending. Ebony has an unpleasant odor when being worked. Although severe reactions are quite uncommon, ebony has been reported as a sensitizer. Usually most common reactions simply include eye, skin, and respiratory irritation.

**Sustainability:** This wood species is on the IUCN Red List. It is endangered due to a population reduction of over 50% in the past three generations.

**Use:** Modelers use this wood for accent pieces, turning and wales (requires steam bending).



**Holly:** Common Name(s): Holly, American Holly

**Botanical Name:** *Ilex opaca*

**Color:** Ivory white to grey-white (sometimes greenish). Can yellow with age.

**Description:** Has a straight, close, very fine grain, some of which can be irregular. A quality wood with an even texture and beautiful appearance.

**Properties:** Requires sharp tools but is easy to work with. Cuts clean and smooth with hand or power tools. Capable of finishing to a very smooth and hard surface. Flexible and strong, bends well due to this low stiffness and high strength. Dry wood is essential as it has a high rate of shrinkage. Glues well. Easy to carve and holds edges better than most other woods. Will accept end fastenings with a minimum of splitting.

**Use:** Holly can be used for framing, planking, decking, trim, carvings, blocks, small fittings, guns and other turnings. It is mainly used for deck planking or bulwark planking. The fine texture makes the wood suitable for delicate fittings and carvings.



Holly  
(plain)



Holly  
(treated)

**African Mahogany:** Common Name(s): African Mahogany

**Botanical Name:** *Khaya* spp.

**Color:** Heartwood color is variable, ranging from a very pale pink to a deeper reddish brown, sometimes with streaks of medium to dark reddish brown. Color tends to darken with age.

**Description :** Has a medium to coarse texture with open pores. The grain can be straight, irregular, or interlocked.

**Properties:** Easy to work with hand or power tools. Glues and finishes well. Considered to be a valid substitute for Honduran Mahogany (*Swietenia macrophylla*), otherwise known as “Genuine Mahogany.”

**Use :** Hull planking, keel, stem, rudder and general ship fittings.



African Mahogany  
(plain)



African Mahogany  
(treated)

**Lime:** Common Name(s): Linden, American

See **Basswood** for information

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**Maple:** Common Name(s): Hard Maple, Rock Maple.

**Botanical Name:** Acer saccharum

**Color:** Pale yellow to deep honey, but can be dull looking.

**Description :** Heavy, fine-grained white wood, readily available, stable and among the hardest of usable modeling materials. A tough strong wood. Cuts nicely and cleanly, with excellent machining qualities but is a little hard to work with hand tools. Maple will take a smooth polished surface. Good bending properties.

**Use:** Suitable for hull and deck planking because of its honey color. Also suitable for small fittings, model bases and display cases.



Hard Maple  
(plain)



Hard Maple  
(treated)

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## Obechi

**Botanical Name:** Triplochiton scleroxylon

**Color:** Very light, pale, straw-colored hardwood.

**Description:** Texture is coarse and contains a grit, which quickly dulls the cutting edge on tools. End grain has a tendency to crumble when cut. The prominent, open grain usually needs filling. Works and finishes well with very sharp tools.

**Use:** Of minimal use to ship modelers. Can be used instead of Balsa for filler blocks.



**Pau Marfim:** Common names: Pau marfim, guatambu, ivorywood, moroti, guatambu moroti, farinha seca, quatamba, pau liso, kytandy, quillo bordon and yomo de heuro.

**Botanical Name:** Balfourodendron riedelianum

**Color:** Generally a creamy white color but it can vary from lemon to a pale yellowish-brown

**Description:** Pau marfim is a creamy colored, heavy, dense wood that grows in Brazil, Paraguay and Argentina. It is one of those woods with few character markings. Its heartwood and sapwood are very similar in color, ranging from a creamy white to pale yellow to yellow-brown. Sometimes the heartwood will have darker streaks. The wood is dense and fine textured and heavy, tough and strong with excellent shock resistance.

**Properties:** Easy to cut with machine and hand tools. It can be cut into very small and complex parts without splintering. Model makers cut it into fine, thin strips and intricate shapes.

**Use:** Uses for pau marfim range from furniture, paneling and cabinetry to construction and flooring. The wood is a good choice for tool handles and oars and drawing instruments. A popular wood for model ship building but its availability is limited.



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**Pine:** Common Name(s) : Sugar Pine, White Pine, Eastern White Pine, Yellow Pine.

**Botanical Name:** Pinus strobus

**Color:** Usually pale yellow to light brown.

**Description :** If the pine is of good quality, the grain is fine, straight and even. Easily worked, finishes well, and has low shrinkage.

**Use :** Good for solid hulls and pattern making.



**Spruce:** Common Name(s) : Spruce, Sitka or Silver Spruce.

**Botanical Name:** *Picea sitchensis*

**Color:** Creamy white to pale yellow with a slight pink tinge.

**Description :** It has a fine, uniform texture and straight grain depending on the rate of growth.

**Properties:** Good bending qualities, works and finishes well with hand or machine tools. Good turning properties. Nails and screws without pre-drilling and has good holding properties. One of the easiest woods to cut, glue, and finish.

**Use:** Good for masts and yards due to its long, straight grain and stiffness.



**Padauk:** Common Name(s): Padauk, African Padauk

**Botanical Name:** *Pterocarpus soyauxii*

**Color:** Usually a deep red colour which will age to a deep, orange brown.

**Description:** Has an even, medium-fine grain but numerous pores are open making it unsuitable for most modeling projects.

**Use:** Can be used for hull and bulwark planking.



Padauk (plain)



Padauk (treated)

**Swiss Pear:** Common Name : Pear

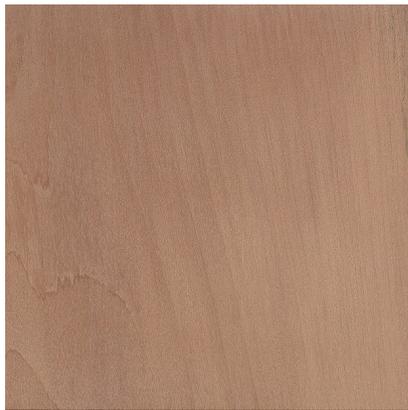
**Botanical Name:** Pyrus communis

**Color:** Cream to pinkish brown to rose.

**Description:** Pear is a fine, close-grained wood and is excellent for carving, turning or milling. It can be cut with a sharp edge in any direction. Finishes to a polished surface. Pear wood can be stained black to resemble ebony. Swiss pear is common pear which has been steamed, giving the wood a pinker and more uniform color.

**Properties:** Flexible and suited to bending. Can be worked to delicate detail and takes an excellent finish. Selected pieces have a straight grain. Turns and cuts well with a clean sharp edge, and holds sharp detail, but has a slight dulling effect on tools. Bend with dry heat; do not steam.

**Use:** This is the classic wood of ship modeling and it is used for everything from carvings and fittings to hull timbering and planking.



Pear



Swiss Pear

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**Walnut:** Common Name(s): American Black Walnut.

**Botanical Name:** Juglans nigra

**Color:** Fairly even dark brown.

**Description:** A very nice wood for working with hand or power tools, although its coarse, open grain make its modeling applications limited.

**Properties:** Bends easily when steamed or heated. Sands to an excellent finish. Cuts and carves well but usually cannot obtain fine detail. Very stable and will not shrink or expand.

**Use:** Frames, keels, decorative planking and moldings. Well suited for hull timbering and framing. Frequently seen as a second layer for hull planking in model ship kits, for which it is not well suited.



Black Walnut  
(plain)



Black Walnut  
(treated)

**The following is a suggested usage in different applications :**

<b>Solid hulls:</b>	Basswood, pine (sugar and white).
<b>Planking and decks:</b>	Apple, basswood, box, castelo, cherry, elm, holly, maple and pear.
<b>Frames:</b>	Apple, basswood, birch, box, castelo, cherry, holly, maple and pear.
<b>Bent frames:</b>	Apple, ash, basswood, box, elm, holly.
<b>Masts and yards:</b>	Birch, box, pear, pine, spruce, and teak.
<b>Deck equipment:</b>	Apple, basswood, box, castelo, cherry, holly, maple and pear.
<b>Blocks and deadeyes:</b>	Apple, beech, box, castelo, ebony, holly, pear and walnut.
<b>Deckhouses:</b>	Apple, basswood, birch, box, castelo, cherry, maple, mahogany, pear, and walnut.
<b>Treenails:</b>	Apple, bamboo, birch, box, castelo, cherry, holly, maple and pear.
<b>Carving:</b>	Apple, boxwood, castelo, cherry, holly and pear.
<b>Turning:</b>	Apple, box, cherry, holly, pear, and maple.

Information obtained from: County Floors, Woodcraft, Amateur Woodworker, The Wood Database, Rare Woods USA, USDA.