



Domestic & Exotic Hardwoods

With an estimated 100,000 species, the number of trees worldwide makes up approximately twenty-five percent of all living plant species. The largest number of trees can be found in tropical regions and many of these areas have not yet been fully surveyed by botanists. Thus, the true tree diversity and their ranges remain uncertain.



Figure 1. Sequoia grove at Redwood National Park, California.


There are a lot of interesting, and fun facts about trees. The tallest living tree is believed to be a coast redwood (*Sequoia sempervirens*) at Redwood National Park, California. It has been named *Hyperion* and is 115.66 meters (379.5 ft) tall. The tallest known broad-leaved tree is a mountain ash (*Eucalyptus regnans*) growing in Tasmania with a height of 97 meters (318 ft).

The largest tree by volume is believed to be a giant sequoia (*Sequoiadendron giganteum*) known as the *General Sherman Tree* in the Sequoia National Park in Tulare County, California. Only the trunk is used in the calculation and the volume is estimated to be 1,487 m³ (52,508 cu ft).



Figure 2. The ancient bristlecone pines can be found in the White Mountains, located in Inyo County, in eastern California.


Also located in California is the oldest living tree with a verified age. It is a Great Basin bristlecone pine (*Pinus longaeva*) called *Methuselah*, growing in the White Mountains. It has been dated by drilling a core sample and counting the annual rings and was considered to be 4,844 years old in 2012. The tree is part of a grove, and its exact location is not marked for obvious reasons... After 1950, the carbon-14 method for historical age determination had been established. When scientists began using this method it turned out that the new radiocarbon numbers didn't seem to match up with the written records.



In fact, in some cases they seemed to be hundreds of years off. The bristlecone pine, like any other tree, lays down a growth ring every year. With a record of the amount of carbon-14 found in the atmosphere available through the pines, scientists were then able to calibrate the test and get dates that matched their written records. By comparing the growth rings of living bristlecone pines with ones dead for many years, scientists have been able to extend the carbon-14 calibration chart back for about 11,000 years...

Wood has been used as building material and for decorative purposes for thousands of years. As there are many species of wood, their wide range of properties has made it a choice for nearly unlimited usages. Wood can be very flexible under loads, maintaining its strength while bending, and being compressed vertically.

There are many different qualities to different types of wood, even among the same tree species. Specific types are better suited for various uses than others, and the growing conditions largely affect their properties. Some species are exceedingly hard, such as Cebil (*Anadenathera colubrine*), Black Ironwood (*Krugiodendron ferreum*), or African Blackwood (*Dalbergia melanoxylon*). Lignum Vitae (*Guaiacum officinale*), and Quebracho (*Schinopsis spp.*) are considered the hardest ones known. Naturally, some of the hardest are also the heaviest ones. Among the heaviest are African Blackwood, Itin (*Prosopis kuntzei*), and Black Ironwood with densities approaching 80 lb/ft³. On the other end of the scale, some woods can be very light once dried. Several Cedar species, such as Western Red Cedar (*Thuja plicata*), Atlantic White Cedar (*Chamaecyparis thyoides*), and the Northern White Cedar (*Thuja occidentalis*) are among the light, soft woods. The lightest one, and by far, is Balsa (*Ochroma pyramidate*) with an average density of just 7.5 lb/ft³.



Due to a wide range of properties, availability, and cost, the choices for woodturning projects are many, and largely depend on the intended purpose. Today, a good variety of domestic and exotic wood species can be obtained through various outlets, locally and internationally. Fresh, “green” wood can first be air-dried; depending on the initial moisture content, an average drying time of at least one month per inch of thickness should be anticipated. Kiln drying is another good alternative. For decorative woodturning, wood should be seasoned, stable, and dried to a moisture content of less than 8%.

A summary of domestic and exotic hardwoods with properties, common usages, availability, and expected costs is provided in the following Section. Please note that price and availability listed there will depend on the quality, quantity, drying stage etc., and can vary significantly. For some domestic species, it may be useful to visit a local sawmill. For exotic woods, consider buying bulk, and try to get whole sale pricing; weigh the cost of shipping vs. a visit to the outlet.