

Hard Maple

Learn what each brings to the table

For much of the year, maple trees blend in with the rest of the forest. In the fall, they explode with an array of marvelous colors. Like its leaves, maple lumber can range from plain and unassuming to stunningly expressive. It's also strong and tough, with tight grain, lovely blond color, and beautiful varieties across North America and Europe.

While hard maple gets most of the attention, soft maple should not be overlooked—or relegated only to secondary components like drawer boxes and internal framework. Soft maple is stronger than its name implies, its color can be very charming, and it's just as likely as hard maple to have beautiful figure.

As a group, the maples offer an unmatched variety of figure.

There is curly striping and quilted bubbles, bird's-eye and burl patterns, bold streaks of color left behind by beetles, and wild patterns made by fungi, who love maple as much as woodworkers do.

Two categories

Hard maple lumber comes primarily from one species, sugar maple (*Acer saccharum*), but also from black maple (*Acer nigrum*). The better hard maple trees grow in the cooler areas of North America, such as the Northeast, northern Midwest, and southeastern Canada. But good trees can also be found in adjacent regions.

Soft maple lumber, on the other hand, comes from any of three species: red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), and bigleaf maple (*Acer macrophyllum*). Red and silver are harvested in the eastern, central, and southern United States, as well

Where maple grows

Varieties of soft and hard maple grow across North America and Europe.

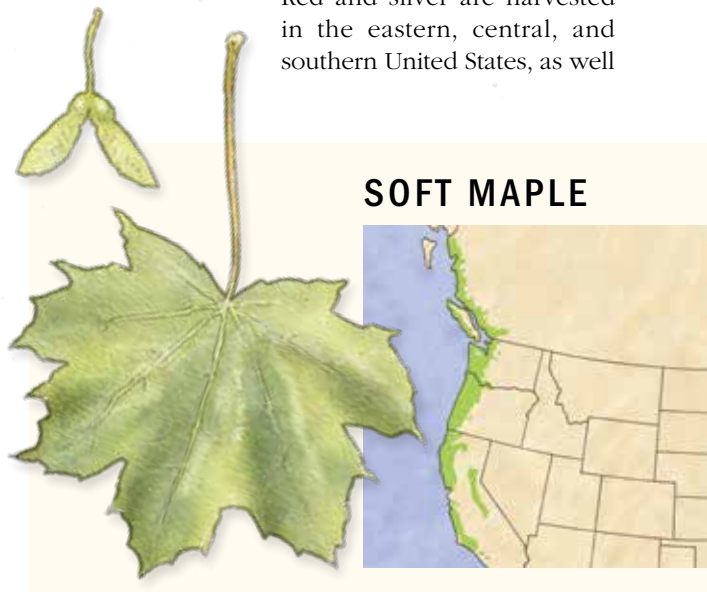


HARD MAPLE

Sugar maple, which accounts for most hard maple, grows throughout the northeastern United States.



SUGAR MAPLE



SOFT MAPLE



BIGLEAF MAPLE

vs. Soft Maple

BY DAN BOLLOCK

as eastern and south-central Canada. Bingleaf maple comes from the Pacific Northwest.

Another soft maple worth mentioning is box elder (*Acer negundo*). Smaller in size than other North American maple trees, it is not sawn commercially into lumber. However, bowl turners love the red streaks in the log, at least initially, as they tend to fade a bit with time.

Europeans import maple from the U.S. and Canada, but they have their own species too. Norway maple (*Acer platanoides*) is the most notable, growing throughout Europe, where it is sawn into boards. While its color and grain are similar to hard maple, Norway maple can be termed hard or soft, because its hardness is somewhere between the two.

Telling the groups apart

The lumber of soft and hard maples has subtle color dif-

ferences that can be difficult to distinguish. The color of hard maple is usually lighter and more uniform, while soft maple tends to have a touch of gray, and sometimes brown streaks or spots.

A better way to distinguish the two types is weight and density. Hard maple trees grow more slowly than their soft maple counterparts, so their growth rings tend to be smaller and their grain tighter. Hard maple weighs 44 lb. per cubic foot, while soft maple weighs 33 to 38 lb. per cubic foot, depending on the species. You can weigh the two, of course, but experience will allow you to tell the difference simply by lifting a board at the lumberyard.

If you weigh the lumber, you'll find the differential to be around 25%. So, for example, at 12% moisture content a 3/4-in.-thick by 6-in.-wide by

6-ft.-long board of hard maple will weigh approximately 8 lb., while a soft maple board of the same size will be around 6 lb.

If you don't have a feel for their relative weights, a close look at the end grain will clear up any confusion. All maples

have rays that run perpendicular to the growth rings. These are visible with the naked eye on the quartersawn face of a board. If you look



Soft maple comes from three North American species.



RED MAPLE



SILVER MAPLE



EUROPEAN MAPLE

Norway maple, with a density somewhere between hard and soft maple, grows throughout Europe.



NORWAY MAPLE

Lots to offer the woodworker

Strong and blond, with a wide variety of grain patterns, maple has been a favorite of furniture makers for centuries.

at the end grain with a 10x jewelers loupe, however, you'll see that hard maple has both thinner and thicker rays, while the rays in soft maple are more uniformly sized.

Hard maple is a workbench favorite. With its extreme toughness and tight grain, hard maple is great for workbenches, especially their tops.



Key characteristics for woodworkers

Hard maple is an extremely tough wood; that's why it is used for gym floors and bowling-alley lanes, as well as workbenches and furniture. Its Janka hardness is 1,450 lb., which falls between white oak (1,360 lb.) and hickory (1,820 lb.). (Janka hardness measures the force needed to push a 11.28-mm-dia. steel ball into the wood to a depth of half the ball's diameter.)

Due to hard maple's toughness, and maybe its sugar content as well, the table saw



Consistent color emphasizes form. At a distance, Rex Alexander's Craftsman-style dining table looks minimalist and sculptural. Take a step closer and there's curly figure everywhere, with dense bird's-eye figure in the spindles.

and router tend to leave burn marks on it. A faster feed rate, plus sharp bits and blades, will help.

Don't let the "soft maple" moniker fool you into thinking it is a lightweight, or that it shouldn't be used for furniture. It's Janka hardness is 950 lb.—exactly the same as cherry—making it plenty strong yet easier to cut than hard maple.

Traditionally, hard maple has been more expensive than soft maple. As more cabinet and furniture manufacturers have turned to the softer subgroup, however, the prices of soft and hard maple have become about the same.

Heartwood vs. sapwood—

Like most species, the maples have sapwood and heartwood of distinctly different colors. Unlike most other woods, however, the sapwood of both hard and soft maple is the preferred lumber and draws the higher prices. That's because

maple sapwood is creamy white, while the heartwood is a darker tan with reddish-brown streaks.

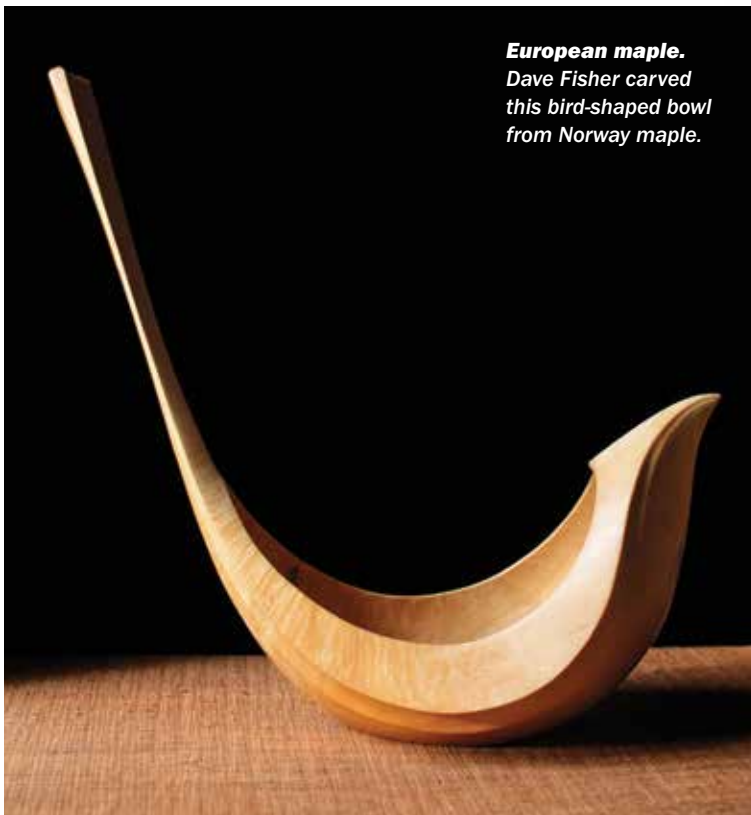
Lucky for us, forest-grown maple trees tend to have a very small heartwood section, sometimes as small as 2 in. diameter. Urban maple trees, on the other hand, tend to have much larger hearts—up to half the diameter of the log.



Soft maple plays well with others. Soft maple works well for furniture frames and other secondary uses, like the drawer boxes in Art LaMan's mahogany tool box.

And it can explode with figure.

Aaron Levine built this cabinet from bigleaf maple with spectacular quilted figure (the base is lacewood).



European maple. Dave Fisher carved this bird-shaped bowl from Norway maple.

Unmatched variety

As a group, the maples offer a wide variety of looks, with boards ranging from plain to highly figured and colored.



Hard maple is calm and quiet. Most hard-maple lumber comes from sugar maple. This unfinished, unfigured sample shows its grain and consistently blond color.



Color varies in soft maple. As you can see in this unfinished sample, soft maple can look just like hard maple and/or have grays and browns mixed in.



Heartwood vs. sapwood. Compared to the lighter-colored sapwood, the heartwood of all maples is darker tan, often with reddish streaks. But it has its own rustic charm.



Curly maple is beautiful and challenging. A coat of oil pops the curl in this red-maple sample. The changing grain direction makes curly maple tricky to hand plane, but sanding works well.



Quilting is another form of curl. It occurs most strikingly in bigleaf maple.



Fun with fungi. Spalting fungi leave lovely color patterns in dead logs. If the wood is cut and dried before the rot has gone too far, it will be plenty strong enough for turnings and accent areas.



Ambrosia maple. Ambrosia beetles attack a variety of maples, leaving telltale entry and exit holes and gray/tan streaks. Unlike spalted maple, ambrosia maple is always sound.

Having said that, maple's dark, streaky heartwood offers a rustic look that's perfect for some pieces.

Inside the amazing world of maple figure

Maple's myriad grain patterns are prized by luthiers, wood turners, box makers, and furniture makers alike. At least one type of maple figure, bird's-eye, is seen only in hard maple. Others, like quilting and curl, are seen mostly in the soft maples.

Spalting fungi and ambrosia beetles, on the other hand, leave their unique patterns in both hard and soft maples.

Curly maple—While most of the curly maple in lumberyards comes from red (soft) maple, it can occur in hard maple as well. Curly maple has undulating growth rings, caus-

Wondering what you have? Check the rays

While hard and soft maples can sometimes be tricky to tell apart, a close look at the end grain removes any confusion.



All maples have rays. These run perpendicular to the growth rings, making them visible on the quartersawn face of a board. But the rays are slightly different in hard and soft maple.

ing the grain to ripple along the length of the log. The rippling grain creates patterns of dark and light stripes on the board, usually perpendicular to its length.

Curly maple stripes can range from narrow and numerous to wide and limited. Subtle differences in striping have given rise to names like fiddleback, tiger stripe, flame, and ripple. These unofficial names are confusing, however, as industry pros can have different definitions for each.

Quilted maple—Quilted maple has a bubbly figure pattern that is prized for the solid bodies of electric guitars. It occurs primarily in bigleaf maple (a soft variety) and rarely in other species.

The bubbly stripes can vary from dime-sized to quarter-sized, tightly spaced to farther apart. The more bubbles, the more expensive the lumber.

Bird's-eye maple—Another popular type of maple figure is bird's-eye. It develops in a small percentage of sugar maple (hard maple) trees in the upper Midwest, northern New England, and Canada. The figure is thought to be caused by branch buds that didn't develop. The dimpled eyes range between $\frac{1}{16}$ in. and $\frac{3}{16}$ in. diameter, and from few and scattered to numerous and dense.

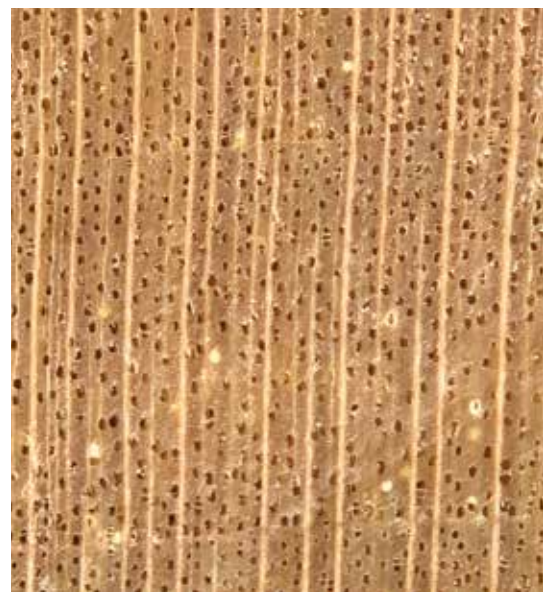
Fungus and bugs—Spalting is internal coloring caused by wood-eating fungi that attack dead trees.

Ambrosia beetles also attack a variety of maple trees, leaving gray and tan streaks scattered throughout the white sapwood. If the little bug holes bother you, you can fill them with epoxy or cyanoacrylate (CA) glue.

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Grab a loupe. An inexpensive 10x magnifier, called a loupe, works well for identifying wood. The loupe at right has built-in LEDs. A common razor blade can be used to shave end grain cleanly for easier identification.



Regular vs. irregular rays. Hard maple (left) has both wide and narrow rays, with the widest being close to the width of its pores. Soft maple (right) has rays of more uniform width, which are slightly smaller than its pores.