

Making Lumber With a Bandsaw Mill

One alternative to the high cost and poor quality of lumber these days is finding the trees and cutting them into boards yourself

by Doug Amsbary

Getting the most out of trees.

Being able to assess the trees in a woodlot will help you to maximize yield while you minimize cutting time and reduce the chance of damaging equipment.

Large-diameter logs yield lots of lumber but have to be cut slowly on a bandsaw mill.

There's a whole section of my property covered with neat stacks of lumber that I've cut on my bandsaw mill either to sell or to use in my building business. To justify the time I spend milling wood, I always tell my wife that these stacks of wood are like money in the bank. Now whenever we're driving around and we see piles of stickered lumber in someone's side yard or at the edge of a field, she always says, "Look, dear, there's another branch office."

For many years, I took any logs I needed to have cut into lumber to a circular-saw mill just down the road. But the sawyer who ran the mill retired, and his son hasn't shown any interest in keeping the mill running. Faced with no local sawmill and frustrated by the quality of commercially sawn lumber, I decided to purchase a portable bandsaw mill for about \$10,000. I found a slightly used Wood-Mizer bandsaw mill in my price range (photo left, facing page), and since then, I've been making most of the lumber I use in my business—from large timbers and framing to finish stock for cabinets and trim.

Bandsaw milling is not just for sawyers—

Working with that old sawyer really put the process of making lumber under my skin. I thoroughly enjoy the whole lumber-making operation: obtaining the saw logs, moving them to the sawmill, performing or helping with the sawing and properly stacking the sawn lumber.

Although I've found that being a part-time sawyer is fun and rewarding, you don't necessarily have to own a bandsaw mill to enjoy the benefits of one. With just a phone call, most bandsaw-mill companies can refer you to a sawyer in your area who can take care of most of your lumber needs (sidebar p. 105).

I sell only a small amount of the wood I cut. In those cases customers call with a request for lumber, and usually I'm able to go to my stacks and find something for them. But unlike retail lumber stores or large local circular-saw mills, I don't sell enough lumber to justify stocking all lengths and dimensions. What I do offer is full-dimension lumber usually better than what's at lumber stores at below lumber-store prices.

Other customers who come to me are in need of custom-cut lumber. Cutting a timber for a mantelpiece that needs to be, say, 9 $\frac{3}{8}$ in. by 11 $\frac{1}{8}$ in. is not a problem for a bandsaw mill. With a sharp blade and the mill properly tuned, tolerances of $\frac{1}{8}$ in. or less are well within a bandsaw mill's capabilities. Custom milling produces less waste, and the bandsaw blade also leaves a smoother surface than a circular lumber-mill blade.

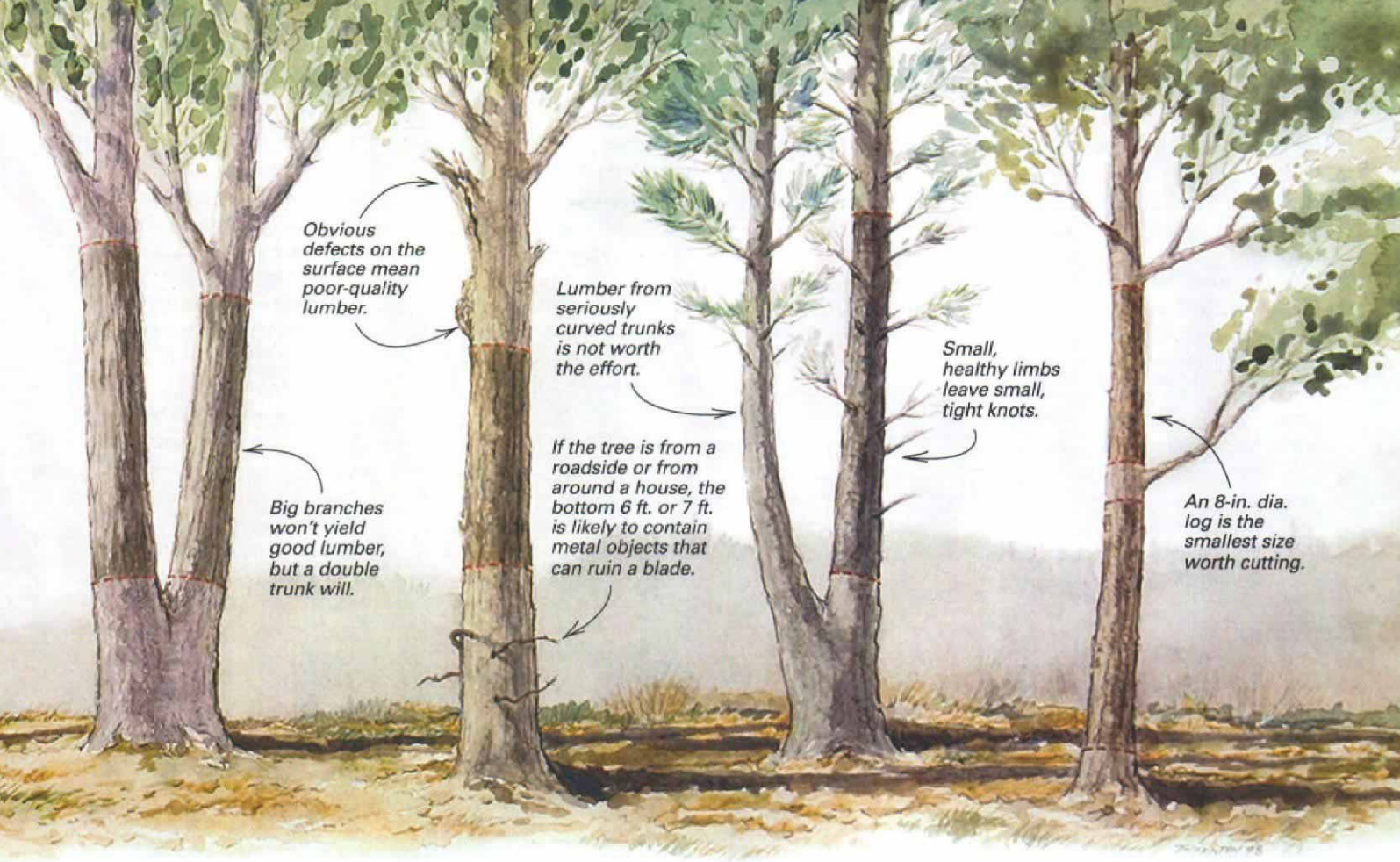
Have bandsaw mill, will travel—Most of my bandsaw work comes from people who have trees or logs they'd like removed or converted to lumber. I have a trailer set up for hauling logs, and it's much easier and more economical for

me to bring the logs to my place to be sawn into lumber. There, I'm set up for efficient handling of logs and lumber.

However, I'm quite often asked to bring the mill to a site to cut up trees. It's becoming more common for a customer to build a house out of lumber from trees cut on site (*FHB* #112, pp. 108-113).

Some sawyers haul out their mills for just a couple of trees, but I require a minimum of 4,000 bd. ft. of logs to saw to make the trip worth my while. (For example, 18 trees 18 in. in dia. and 16 ft. long would yield around 4,000 bd. ft. of lumber; 42 trees 12 in. in dia. and 16 ft. long would yield a similar amount of lumber.) It takes a number of hours to transport and set up the mill, log loader and board edger (the machine that removes the bark-covered edges from boards), so I normally charge a small setup fee (\$35 is my standard, a little more if I have to travel over 25 miles). I ask the owner of the logs to provide at least one person to deal with slab waste and to take the sawn lumber from the mill and to the stack as it is cut.

Ideally, a remote location should have a flat area large enough to set up the mill and edger and still be able to accommodate a tractor to load the logs onto the portable log slip that I use to feed logs to the mill. Other saw models have hydraulic arms that pick up the log and load it onto the mill, eliminating the need for a tractor. To cut logs into lumber here in northern New Hampshire, portable-bandsaw-mill owners



Obvious defects on the surface mean poor-quality lumber.

Lumber from seriously curved trunks is not worth the effort.

Small, healthy limbs leave small, tight knots.

Big branches won't yield good lumber, but a double trunk will.

If the tree is from a roadside or from around a house, the bottom 6 ft. or 7 ft. is likely to contain metal objects that can ruin a blade.

An 8-in. dia. log is the smallest size worth cutting.



Stacked for air-drying. Strips of wood called stickers separate the layers of freshly cut lumber to allow air to circulate through the stack. Recycled metal roofing covers the pile to keep off the rain and snow.

One-man band (sawmill). Designed for small lumber-making operations, a bandsaw mill can be operated by a single person. Wheels are easily attached so that the mill can be towed away for cutting logs on location.

charge anywhere from 15¢ per bd. ft. (for softwoods) to 22¢ per bd. ft. (for hardwoods). When the mill and the equipment leave the sawing site, the customer is left with the slab waste, a large sawdust pile and, more important, a pile of freshly sawn lumber.

Finding raw material—The biggest part of the sawing I do involves picking up small quantities of trees that either have been cut down or have fallen down. I get saw logs from area builders, town road agents, the local electric company and, surprisingly enough, insurance companies that are usually the first parties contacted about storm damage from fallen trees.

Clearing a lot for a new house usually involves cutting trees, and people in my area know I'm willing to go and pick up a few trees that would be too much bother for most commercial log-

gers. Most of the time, people are happy to get rid of the trees without paying for the service.

If saw logs are valuable for size or for species and if the owners are hedging about letting the trees go for free, I usually offer to remove the limbs and brush in exchange for the sawlogs. I also have purchased logs for a custom lumber order. Most times, however, I get logs just for the price of cutting trees down and hauling them away. The trick is recognizing a tree's lumber potential and knowing how to get the most out of a tree as it is being cut up (drawing pp. 102-103).

Stickers let lumber dry evenly—After the lumber has been sawn (sidebar below), it has to be stacked properly for drying. Although there are kilns in my area for drying lumber, I find that air-drying is sufficient for most of the lumber I use. Successful air-drying means making sure there is

enough air circulation around and through the stack so that the wood dries evenly. Using spacers called stickers between the layers of lumber ensures proper air circulation (photo right, p. 103).

I build my piles on top of 6x6 timbers about 2 ft. apart starting within a foot of the ends of the stack. I block the timbers up so that they are in the same plane, and I lay a sticker on top of each timber. I make my stickers a little wider than they are thick (1 in. by 1¼ in.) so that there is no guessing which way the stickers lie down and so that the sticker layer is always a consistent thickness. I always try to use dry stickers because they are less likely to leave sticker stains, which can downgrade lumber that is supposed to receive a clear finish.

I put a layer of freshly sawn lumber down over the timbers, leaving about an inch or so between each board for air circulation. I make my pile around 4 ft. wide so that I can pick it up with the

Turning logs into lumber

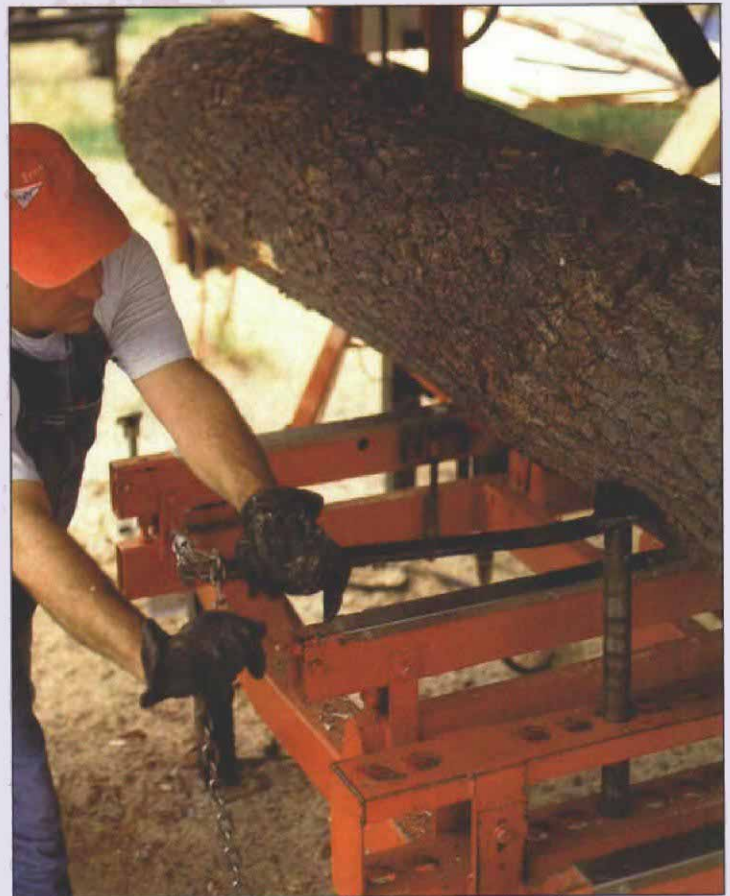
The first step in turning trees into lumber is making sure the trees are clean. A lot of times, logs have to be dragged out of the woods instead of being carried. Dragging a log can fill the bark with dirt and debris that dulls the bandsaw blade quickly.



Pressure washing—If a log is noticeably dirty, I use a pressure washer to clean it off. The clean logs are then loaded on the log slip, which is basically two heavy beams running over to the saw bed.



Leveling the log—After I mark the end for my initial cuts, the log can then be rolled from the log slip onto the saw table using a peavey, which is a lever with an attached round hook. I have outfitted my bandsaw mill with a hydraulic toe board that operates with a foot pump. The toe board lifts the small end of the log so that the blade runs parallel to the center of the log for less waste. (Most toe boards operate either with a hand crank or with an integral hydraulic pump.)



Dogging the log—Once the log is on the saw table and my first outline is roughly parallel to the blade, I lock the log in position with dogs that slip into the saw bed and wedge the log against vertical clamps on the other side of the bed.

Now I'm ready for my first cut. With the machine running, I adjust the blade tension and turn on the water drip that lubricates the blade. I move the blade guard to within a few inches of the log with a control lever. Another lever moves the carriage forward, pushing the blade into the log while controlling the speed at which the carriage travels. I walk along behind the saw carriage at the controls as it slices through the log. Most machines can be outfitted with a seat for the operator.

forks on my tractor if need be. Next I position another series of stickers on top of the lumber directly over each of the bottom timbers.

As I stack the successive layers, I make sure that the stickers align with the layer below so that the pile's weight doesn't deform the lumber. I cover each pile with metal roofing or with old plywood sheets, and I use concrete blocks or wire banding to keep the covers from blowing away. If I can, I set the pile bottoms on a slight slope from front to back so that rain and melting snow can run off easily.

Dealing with the slabs and the sawdust—

Whether you are in the business of sawing lumber or a sawyer with his portable mill has just tuned your pile of logs into lumber, you are left with several waste products that may have a marketable value. I sell my slab waste to area maple-

syrup producers to fire their evaporators and to campgrounds for campfire wood. Hardwood slabs make ideal firewood. Edging scraps can be cut up and sold for kindling.

The sawdust generated by a bandsaw mill is a bit trickier to deal with. Because it is generally fine in texture and gets dusty when it dries out, it should not be used for animal bedding like the coarse sawdust from circular-saw mills. However, in limited quantities, bandsaw-mill sawdust can make a good soil additive, and I use it instead of sand on icy walkways for traction. That old sawyer I used to work with, a true Yankee, always told me that selling the slabs and sawdust should pay for the fuel to run the mill. □

Doug Amsbary makes lumber and has a building business in Sugar Hill, New Hampshire. Photos by Roe A. Osborn, except where noted.

Find a sawyer in your area

Got some logs or trees that you'd like to have sawn into lumber? Need someone to custom-cut some odd-size piece of lumber for you? Most bandsaw-mill companies offer a service to help you find a sawyer close to where you live. Services vary between companies, but most use a ZIP-code directory to hook you up with the nearest sawyer. Here are a few.—D. A.

BetterBuilt Corp., (508) 657-5636

Kasco Manufacturing Co. Inc., (317) 398-7973

TimberTechnology, (804) 978-4636

TimberKing, (800) 942-4406

TimberHarvester, (800) 343-2969

Wood-Mizer, (800) 553-0219



Cutting the flip side—Once the blade has cleared the far end of the log, the slab of wood that was sliced off is removed either by me or by a helper, and the carriage returns to its starting position. I continue slicing down in 1-in. increments until I have enough flat surface exposed on the top of the log, depending on what lumber I want to saw out of the log. These 1-in. slices have bark edges, or wane, and I put them in a separate pile to be run through the edging machine.

At this point, I loosen the dogs and roll the log 180° until the flat-sawn area that I just made is face down on the table. The log is again locked in place, and more slices are taken out, only this time I position the height of the blade so that I'm left with the desired thickness for whatever lumber I need to cut.



Squaring the cut—The next step is a bit trickier. The log is rolled 90° so that one of the flat sides of the log is resting against the vertical clamps. The trick is to hold the log in position with the peavey, to square up from the table with a framing square and then to engage the dog to hold the log square for the next slice. An extra pair of hands really helps for this maneuver.



Making lumber—The log can then be sliced square to the first cuts and flipped 180° again to square the other side. All remaining lumber cut from the log should have square edges no matter which side of the log is lying on the bed.



Edging the boards—The edging machine consists of two circular-saw blades that can be adjusted for width. All the slices taken off the log with bark or wane on the edges are fed through the machine on mechanized feed rollers. Usable boards are stacked for drying, and where possible, the ripped edges are made into stickers for stacking the lumber.—D. A.