

The Sawmill

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Project



Generous gifts from friends, neighbors, and tree surgeons.

Like many turners, I get a lot of wood free in the form of logs. Usually, I work on only one or two logs at a time, and my chainsaw and 18" (45cm) bandsaw are sufficient for prepping the wood I need for turning. But I must have had some good wood fortune recently because all at once, from a variety of sources, I had an abundance of beautiful, perfectly sized logs.

My woodpile expanded to the size of a small woodlot, amounting to over fifty logs: black walnut, butternut, cherry, maple, white ash, beech, and magnolia, with diameters up to 2' (60cm) (*Above*). I did not want to let the logs sit for too long and become casualties of nature's

process, so I decided to go the route of production and rent a portable sawmill.

Some problems with logs

Leaving wood to dry in full-log form is ineffective and reduces the amount of usable material, sometimes within just a week or two. The centermost areas of logs rarely, if ever, dry fully, and if logs are stacked directly on the ground, rot is inevitable. Even if logs are stored out of the elements, a whole log will end check and eventually surface check as the moisture leaves the wood, beginning with the outermost parts of the log. This checking



1 Surface checking on a maple log. The deeper the cracks, the less usable wood there is to harvest from a log.



2 Extensive ant damage in a cherry log (note the eggs!).

reduces the amount of usable stock (*Photo 1*).

It has been my experience that a water-based wax-type emulsion sealer is quite helpful in slowing the drying process and even in eliminating cracking and checking in smaller, dimensioned pieces of wood. This sealer, however, will not prevent cracking and checking in whole-log sections, which contain a greater mass, have an unstable pith area, and are round, not milled. The release of moisture from cut wood is a natural and inevitable occurrence as a result of evaporation. Storing wood in whole-log sections over the long term is not ideal.

Wood-boring insects or critters create another problem when leaving wood in log form outside for too long, especially if logs are covered with a tarp. A fascinating variety of beetles, ants, termites, pill bugs, centipedes, slugs, grasshoppers, mice,

snakes, and spiders take up residence in that sheltered, cozy log pile (*Photo 2*). Whenever I uncover the wood to seek out just that right log for a turning project, my daughter takes delight in her never-ending quest to discover new creepy, slimy creatures. My perspective is rather more practical—I view wormholes, ant damage, rot, punky areas, mold, and spalting as something that spoils perfectly good wood. While many of these “defects” can produce interesting turnings, most of my customers are seeking a functional item, made of sound wood.

I love trees and wood and I prefer not to let wood go to waste, so it pains me to watch solid logs become increasingly unusable.

Seeking a sawyer

I decided that a portable sawmill would be a perfect solution to processing my treasure. They are highly efficient and produce precisely placed rip cuts (*Photo 3*), unlike my current method of processing logs with a chainsaw and bandsaw. ▶

Butterfly Bowl, 2009, Black walnut, 4" x 15" (10cm x 38cm)



Walnut bowl, 2009, Black walnut, 4" x 13½" (10cm x 34cm)



3 A horizontal cut through this ash crotch required a bit of wedging to stabilize the log. The sawmill delivered precise placement of cuts, which resulted in wood that was easier to process and also minimized waste.



4 Our sawmill setup consisted of a wooden platform with a fence and wedges to hold the logs in place.

I quickly discovered that renting a portable sawmill was almost unheard of, and even if I could find one to rent, I am inexperienced and would have to spend a good deal of time learning the nuances of the machine and of processing logs. I made a few calls to find a sawyer in my area. The lead that paid off was through a local sawmill operator, who knew of someone with a portable bandsaw-type sawmill.

I called the sawyer and told him that I wanted most of the logs in a log pile cut in half, at or near the pith. From that point, I'd be able to use a chainsaw or bandsaw (depending on the size of the half log) to rough out bowl blanks. I could use my bandsaw to rip smaller logs into stock for between-center projects. He accepted the challenge and, at the rate of \$450 for half a day, said he would "work with me" to get the job done. He said that the job sounded fun and interesting.

4' (120cm) apart. The jig we created worked fine, for the most part. We used a wooden fence and wedges to hold the logs in place (Photo 4). A more secure way of holding the logs would definitely be an improvement for next time, as the lighter-weight logs required a very slow feed rate to prevent the blade from pushing the log.

The actual cutting time took around four and a half hours. We established a routine. I loaded the logs onto the mill and used chalk to draw a line where I wanted them cut, and the sawyer did the cutting. For heavier logs, we were able to use the hydraulic log lifter on the sawmill to raise the logs to the correct height. We cut all of my logs, mostly with just one or two passes per log. And as they say, I now had my work cut out for me! After the sawyer

The sawmill in action

The sawyer knew right away that we would have to build some kind of jig for holding the shorter logs on his Timber King mill, whose support beams are about

New Relic, 2009, Maple, 10" x 15" (25cm x 38cm)



Natural-edge bowl, 2009, Magnolia, 2 1/2" x 6" (6cm x 15cm)

left, I evaluated the huge mound of cut wood and separated the pieces into two piles: wood that was small enough and ready for my bandsaw and half logs that I would rough out with the chainsaw to use for large bowl blanks (Photos 5, 6, 7, 8).

Additional processing

It was imperative that I move the processed wood out of the sunlight as quickly as possible. The bandsaw pieces went into my garage. I sawed the half logs next into round forms for mounting on the lathe and then placed those rounded half-log sections into plastic bags, to prevent release of moisture too quickly. The next step was to get them onto the lathe so that they would not languish for too long in the plastic bags, growing mold. Once on the lathe, I roughed out the outside profile of the large bowl blanks and then cored them using the McNaughton center saver.

"...it was worth the hard work; I now have a vast stockpile of bowl blanks to select from, in a variety of sizes and species."

When I core bowls for drying, I leave each bowl extra thick. In general, a thickness of about 10% of the bowl's diameter is desirable, so a 10" (25cm)-diameter bowl would be roughed to a wall thickness of about 1" (25mm). I then seal the bowls with a water-base wax-type emulsion sealer. I store the sealed bowls in a separate part of my basement, where I run a dehumidifier. As a ►

Memory Boxes

While visiting my booth at a craft fair, a repeat customer and friend saw some lidded boxes I had made and got an idea to commission a truly custom gift for his grown son. He had recently cut down the limb of a cherry tree in his backyard where a tire swing had hung since his children were little.

He had a valued photo of his son as a little boy on the tire swing and wanted a way to preserve those memories. I was commissioned to make a box from the wood and attach a copy of the tire-swing photo to the inside of the lid. I was to make two other

boxes at the same time, one for his daughter and one for his granddaughter, using other favorite photos.

Cherry wood is lovely to turn. It is midway between the tool-dulling density of maple and the easy cutting softness of butternut. When finish is applied, the wood takes on a darker tone and the grain pops. I attached the ink-jet photos to the lids using thick CA glue, with several coats of gloss lacquer over the top.

My customer, Bob, has reported back that his children love the boxes and will treasure them for a lifetime.



*Memory Boxes, 2009,
Cherry, photographic paper,
3½" × 5" (89mm × 127mm)*



5 We produced a substantial pile of cut logs on *both* sides of the sawmill.

byproduct of the process of removing moisture from the air, the dehumidifier circulates air in the room, around the bowls, which speeds the drying process. Depending on the species and size, the bowl blanks usually dry sufficiently in two to five months.

The cored bowl blanks will shrink and move out of round, losing weight

as they dry. When a bowl blank stabilizes to the humidity in the room (that is, when it stops warping and losing weight), it is sufficiently dry for finish turning. I don't

actually weigh the blanks to track their moisture loss; I can tell fairly well if they're ready to finish turn, just by handling them.

I roughed out and sealed bowl blanks for a long time, but it was worth the hard work; I now have a vast stockpile of bowl blanks to select from, in a variety of sizes and species.

I also spent many hours at the bandsaw, ripping smaller half logs into 2"-4" (50mm-100mm) thick blocks, which are now air drying. As is the case with whole logs, smaller blocks will experience end checking as they dry, reducing the amount of usable material. To minimize this effect, I seal the ends of the blocks with the same wax-type sealer. Doing so prolongs the drying process but also preserves more of the wood than if no sealer was used. I then stack and sticker the blocks of wood onto racks to allow air to flow around them.

The entire project required a good deal of physical work but the outcome was a positive, generally efficient way to process and begin drying my own turning stock. ■

Joshua Friend, owner of J. Friend Woodworks, is a member of Nutmeg Woodturners League, which meets in Brookfield, CT. For information about his work, visit jfriendwoodworks.com.



6 A walnut crotch slab will become a stunning platter.



7 This half log will make an attractive walnut bowl. The circle encompasses almost equal amounts of sapwood on either side. Drawing a circle with a piece of chalk is a helpful aid when using a chainsaw to rough-cut a circle.



8 Now that the half log is cut into a rough circle, it will be safely mounted onto the lathe for roughing into a bowl blank, then cored.