

Outdoor Skills**The Self-Made Bow**

The ultimate in back-to-basics archery.

by Mark Hicks

I've taken a lot of deer, but the one that I'm most jazzed about is the one I shot with my self-made bow. You can use white woods like hickory and ash, or heartwoods like osage, mulberry, and black locust. Beginners should use hickory because it's relatively free of knots. You can buy stave splits—single sections of wood split naturally along the grain—from traditional archery dealers, or cut your own. In either case, you need summer growth rings at least 1/8 inch thick.

Cutting your Own

To pound out splits from a felled tree, use wedges and a sledgehammer. The trunk should be straight, reasonably knot-free, and at least 6 to 7 feet long and 16 to 18 inches in diameter. Split the log in half. Off each half, hammer splits that measure 3 1/2 to 4 inches wide. Each will yield one bow. Immediately coat all the ends with shellac to prevent the green wood from splitting on its own.

Shaving the Stave

Note the stave's growth rings at either end—laminations of winter growth rings separating thicker summer rings.

Secure the stave in a vise and shave off the bark and sapwood with a drawknife to expose one unbroken summer growth ring along the back (bark side; photo B). With hickory, peel the bark to reveal the sapwood and shave off the remaining layer (cambium) with a cabinet scraper. With heartwoods, you must shave off the bark and white sapwood with a drawknife to reach the darker, denser wood beneath.

Draw down to the winter growth ring just above the summer growth ring you have selected. Pare away the final winter growth ring with a cabinet scraper, following the growth ring from one end of the stave to the other. Take care not to cut through any knots, bumps, or swales along the growth ring because doing so will cause the bow to fail.

Drying and Shaping

Pare the green stave with a hatchet and a drawknife so that it's slightly larger than the shape of your intended design. Before the drying process, paint the exposed back with shellac to prevent splitting. Now you wait: In a few weeks, the wood will come down to about 15 percent moisture content. To bring it down to an optimum 8 percent, put the stave in a heat box at 100 degrees for two more weeks.

You can make a 1 x 1 x 8-foot heat box from a single sheet of plywood. Put two or three light fixtures along the bottom of the box to hold 40-watt lightbulbs for heating elements. Insulate the box with a surplus sleeping bag.

After drying, draw the bow's outline (length and width) on the exposed growth ring, taking care to maintain a straight centerline. You may choose from a variety of shapes, depending on the type of wood you are working with.

Opt for a length of 70 inches on white wood, 64 inches on osage. The middle 8 inches of the stave forms the handle and the base of the limbs. The handle will finish about 1 1/2 inches thick. The limbs should be 1 1/2 to 2 inches at their widest point across (and 5/8 inch thick), tapering to 5/8 inch across at the tips (3/8 inch thick).

Reduce the stave to your outline with a drawknife, rasp, and file (making sure not to cut into the growth ring atop the back of the bow). Remove wood on the bow's belly (string side) and handle to slightly oversize dimensions.

Floor Tillering

Shaving the belly of each limb to achieve the correct thickness is a process called tillering. Remove wood evenly from the belly with a file and cabinet scraper until the limbs are thin enough to begin bending. Check the tiller (bendability) by holding the bow upright by one limb, placing the other limb on the floor, and pushing firmly on the handle with your free hand to bend the bottom limb. Do this for both limbs.

Look for flat spots that reveal where the limbs are too stiff and shave wood from them with a rasp, file, and cabinet scraper. Take off only small amounts of wood at a time, and keep repeating the process. When the bow bends enough to be strung, it should still be well over your desired draw weight (50 to 60 pounds).

Finishing

String the bow and bring it to its full draw weight—and no further—a few times (check this with a bow scale). Again, shave wood from the bow's belly to eliminate flat spots. The goal is to achieve a perfectly even bend in the limbs. A tillering stand (photo D) lets you study how the limbs bend from a side view. Cut a notch in one end of a 2x4 for the bow's handle, and notches every 2 inches along the board's edge to hold the string.

Bend the bow to your desired draw weight a few times after each shaving session. After several repetitions, the bow will eventually reach your draw length. The closer you get to your draw weight, the less wood you should remove between bending sessions. The bow will lose weight when you shoot it in, so stop tillering when it is 5 to 10 pounds heavy.

Sand the entire bow with 80-, 150-, and then 220-grit paper. Stain is optional. Seal the wood with three coats of clear gloss polyurethane, and a final coat of clear satin polyurethane.

Learn bow building, flint knapping, and other primitive arts at the Primitive Gathering at Camp Tuscazoar in eastern Ohio on June 26–27. Contact Ken Schlegel (330-756-2041) or Tim Palaski (330-837-2415; ishiski@sssnet.com).

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