

# Making a Bow From a Sapling

by Jon Jeffer

*I had a letter in connection with my [fletching article](#), from a young man in the United Kingdom who was struggling with his first bowyer project. A bow from a sapling. My reply more or less reconstituted a bow building project that I undertook back when I first became interested in primitive technology. An archeologist, primitive technologist and bowyer, from Germany, Thomas Rudhardt, walked me through my first successful primitive bow making project via a mail list serve, The Primitive Skills Group. Since this is a project that a lot of people are interested in periodically, I have pulled my thoughts together on this. A bow from a sapling can be as potent a weapon as you could hope for and will take big game, and can be made successfully with a minimum of tools.*

## The Staff

For your sapling bow projects: Try to find a straight sapling of some hardwood about 2" thick where the handle will be. If you can find or borrow a saw, that will help you cut the bow staves and will work out better than chopping and breaking them off at the base.

Most hardwoods are good bow woods. If you avoid conifers, poplars and willows you should be in good shape. The Maples, the Oaks, Beech, Black Locust (*Robinia Pseudoscacia*) or Honey Locust all work, and many other. Out on the West Coast of the United States, people have reported good luck with Juniper and Bay Laurel. The premium bow woods Osage Orange and Yew require special preparation and I am not considering them here.

Cut the staff, let it be as long as you are tall (at least nose height), free of knots and with no spiral twist up the trunk. Split it in half lengthwise. From the end it should look like a "D". The bark side will be the back of the bow. Strip the bark off, but otherwise don't touch it and don't cut into the outer growth ring.

You may be thinking that you could actually get two staves out of this sapling. You can in theory. In practice, I have found it difficult to achieve this by splitting the staff. You might have better luck with a saw. Usually I end up with one staff and some kindling.

## Rough Tilling and Seasoning

After splitting, reduce the staff on the belly side (flat side - former inside of the tree) so that the staff is a bit over an inch thick. Do that quickly with a big kitchen knife. You can do this right after cutting the sapling. If in doubt leave it a bit thicker. Reducing the thickness and strength of the staff is the process known as Tillering. This rough tillering will allow the staff to dry or season fairly quickly.

Seal the ends by spreading some glue on or rubber banding some plastic wrap over the ends. The reason this is done is to prevent cracks or checks developing in the ends of the staff as it dries.

Bring it inside and tie the ends to a pipe, your bed frame, a beam, 2 x 4, or something similar. Tie it belly side facing outwards. Take a couple of chunks of wood and slide them between the bow staff and the thing it's tied to, and slide them out toward the ends. This will reflex the tips of your limbs a bit. Tie the middle of the bow to the pipe, post, or bed frame. Let it sit like that for at least two weeks. Longer is better, but a month should be fine.

After a couple of weeks or so you will have a more or less seasoned piece of wood. Green wood, wood with a high moisture content, will "take a set" or "follow the string" with use. This means that the bow will take a permanent bend in the direction it is pulled. This indicates weakened fibers and also will lower the early draw weight of the bow and rob it of cast. Bows that are stressed while the wood is green tend to last very long.

## **Laying Out the Bow**

Next step is laying out. Use a straight edge ruler and a pencil. With the pencil and straight edge lay out the outline of the bow as it would be seen looking at the back or belly. Make the limbs the same more or less. Keep them wide to within about 8 inches of the ends. Then taper them in to a width of about a half inch. The handle should be about 4" long and between 1" and 1 1/2" wide, depending on your hand (and figure on about 2 inches of fades where the handle transitions into the limbs). Draw all this onto the belly of the bow. A straight edge will help.

## **Shaping the Profile**

This is where you will shape the bow down to the outline that you just drew. Try to get hold of the largest, most aggressive rasp you can find, get a large sharp kitchen knife (if it's dull, you can sharpen it on the bottom of a ceramic coffee mug), and get a few sheets of the coarsest sandpaper you can find. Cut and rasp the bow shape to the lines you have laid out. Rasp out the handle shape. Look at the shape with your eye and try to make the lines elegant and the two limbs of the bow as close to each other in profile as you can. Be careful in reducing the width of the handle section. This should remain more or less rigid, or at most take a very slight flexing. If in doubt leave it beefy until later on in the shaping process.

## **Tillering**

Tillering refers to the process of making the staff into a bow. To do this, start at the area of the fades (adjacent to the handle), and start to incrementally remove wood from the belly of the limbs. I like a rasp for this, but for my first primitive bows, I used a kitchen knife and couple of pocket knives. The rasp works better in my opinion. Other people like other tools. Tying or clamping the staff to something helps. A vice is ideal.

To use the rasp: rasp back and forth across the limb starting at the handle fades and moving out to the end of the limb.

To use the knife: hold the knife at right angles to the staff, start at the fades, and use it to scrape/plane long thin shavings off.

You can eventually also work back from the tips to the handle. Just make sure that with rasp or knife, you keep the number of passes about the same until you can judge whether the limbs are not bending evenly.

Every few passes, take the bow staff out of the vice and put one end on the ground, grab the other end in one hand and the handle in the other and test it for flexibility. Take your pencil and mark the parts of the limb that are not flexing, and work on those. When it starts to bend, put an extra long string on it so that you can begin to pull it a bit. Don't pull it too far yet and never pull it to more than its finished draw weight should be.

Basically this is the process of Tillering. You pull a bit, look where it is not bending, and remove a little wood where it is not bending. Eventually you can string it and put on a right sized bowstring and begin to pull it incrementally a few inches more each time. The idea is that you remove wood where the limbs are not bending enough. What you want is to have the whole of the bows limbs bending evenly with no weak spots and no stiff spots, and to have both limbs bending more or less the same.

When it is all bending evenly, you take another pass at both whole limbs. Then pull it a bit and look again.

The key part to this process is being very patient. As you get towards the end, put the rasp and knife down and use the sandpaper to tiller. Bows have been known to break during Tillering. So go slow and be patient. Another thing to keep in mind is where the bow limb will go if it does break. All the energy it takes to pull the bow has got to go somewhere. Eye protection is not a bad idea either.

What you are looking for is to have the whole limb bending, except the handle and the last 6" out to the tips. The rest of the bow should inscribe a parabolic curve - like that of a satellite dish antenna.

Finish Tillering when you are a few inches short of the finished draw length.

## **Breaking in the Bow**

Leave the bow strung overnight to break in the limbs. Then the next day, gently pull it out to its finished draw length. Pull it short 50 times. Check the tiller and adjust

with sandpaper. Then pull it out to its finished draw length 50 times. Again adjust the tiller with the sandpaper.

At this point you should be able to take it out and shoot it. After you have shot a couple of hundred arrows through it, you may need to adjust the tiller. You will want to sand it (not too much because that will reduce the draw weight) and put some kind of finish on it to keep it from absorbing moisture. On my first primitive bows I used fat. Now I tend to use Boiled Linseed Oil or Tung Oil. Most wood finishes that will inhibit moisture penetration are fine.

## **Adjusting Draw Weight Up**

If after shooting and sanding, the bow has lost more draw weight than you would like, you can "spike it" at this point, shortening the limbs by an inch or so - probably no more than 2 inches. Figure roughly 5 pounds of draw weight increase per inch removed from both limbs.

Depending on the wood, you should be able to make a pretty serious hunting weight bow. Store your bow unstrung in a dry but not overly hot place. This way that should last for a good while.



E-mail your comments to "Jon Jeffer" at [mudvillejon@yahoo.com](mailto:mudvillejon@yahoo.com)

### **[PrimitiveWays Home Page](#)**

*We hope the information on the PrimitiveWays website is both instructional and enjoyable. Understand that no warranty or guarantee is included. We expect adults to act responsibly and children to be supervised by a responsible adult. If you use the information on this site to create your own projects or if you try techniques described on PrimitiveWays, behave in accordance with applicable laws, and think about the sustainability of natural resources. Using tools or techniques described on PrimitiveWays can be dangerous with exposure to heavy, sharp or pointed objects, fire, stone tools and hazards present in outdoor settings. Without proper care and caution, or if done incorrectly, there is a risk of property damage, personal injury or even death. So, be advised: Anyone using any information provided on the PrimitiveWays website assumes responsibility for using proper care and caution to protect property, the life, health and safety of himself or herself and all others. He or she expressly assumes all risk of harm or damage to all persons or property proximately caused by the use of this information.*

© **PrimitiveWays** 2013