BOW MAKING
with Justin Sutera

PART I

PRIMITIVE PURSUITS

615 Willow Ave., Ithaca, NY 14850 | primitivepursuits.com | 607-272-2292 ext. 195

About the Author

Justin Sutera first got interested in primitive living skills when he was 14 after being introduced to 'The Tracker' written by Tom Brown. Since that time Justin has explored primitive skills deeply (often by trial and error in the early days). He graduated S.U.N.Y. College of Environmental Science and Forestry with a B.S. in Conservation Biology.

While still a student Justin founded ESF Primitive Pursuits Club. Additionally Justin has studied at the Tracker School and worked as an instructor at The Children Of The Earth Foundation before joining Primitive Pursuits as a full time instructor. Justin is particularly passionate about primitive bow (and arrow) making, flintknapping, and hide tanning but truthfully all skills for living with the Earth are of great interest to him.

As a lead instructor with Primitive Pursuits, Justin focuses on teen and adult programming including Wilderness Weekends, the Wilderness Skills Intensive, and the Wilderness Year program.

About Primitive Pursuits

Primitive Pursuits is a non-profit program in partnership with Cornell Cooperative Extension. We provide leadership and wilderness skills education to hundreds of toddlers, youth, teens and adults throughout the Finger Lakes region.

Since 2002 it has been our mission to steward the health of our community by fostering life-long relationships with the natural world through exceptional mentoring and nature education.

Through our mission, we work daily to achieve a cultural intervention that will bring back into our modern lives a necessary and healthy relationship with the natural world and within our human communities.

For more please visit **primitivepursuits.com**

Introduction

First of all, I want to mention that there are tons of fantastic books and other resources out there on bow making. Many bowyers have done extensive research and really explored bow making as a detailed science. These are amazing resources, and I highly recommend you utilize them.

The information included here is from direct experience and has proven to work, as both my colleague Sean Cornell and I (pictured below) both successfully hunt deer with our handmade bows and arrows.

The intent of this e-course is to make bow making accessible and simple, and provide you with enough tools to put hatchet to stave, but is in no way complete.

Justin Sutera
March 2016

Part I
Locating, Harvesting, and Preparing the Stave

The first step in making a bow is finding a piece of wood to work with. Here in the northeast we are lucky to have a plethora of fantastic tree species at our fingertips. As a general rule any hardwood will make a bow. In this case I am defining hardwood by broadleaf tree. For instance, conifers like Pine do not make good bows, and broadleaf hardwood trees like Hickory, Maple, Oak, Ash, and Elm make good bows. Diving in further we can look at density as an indicator for bow wood quality. Broadleaf soft wood trees like Basswood and Willow have a very low density, and will not make good bows.

If you do any amount of research at all you will come across Osage Orange and Yew as the two best bow woods. Yew breaks the first rule as it is a conifer and actually has quite a low density. Osage Orange is one of the hardest woods and is incredibly dense. Since these woods are hard to come by and each requires fairly specific strategies for working with them, I'm not going to recommend using them for your first bow.

I will highly recommend getting to know your local trees as you begin this journey into bow making. Good bow wood is growing everywhere; it just takes a little tree knowledge and wandering to find a good tree.

Hickory, White Ash, and **Elm** are the three species I will recommend working with first. They will all make a fantastic bow and arrow. What is almost as important as which species you choose is the quality of the individual tree. We need the tree to be fairly straight and knot free in order to make a good bow and arrow.

Both these trees (hickory left, hop hornbeam right) will make fantastic bow staves. They are straight and knot free. However both these trees are healthy and are not appropriate trees to harvest given the larger context of the forest through the eye of the caretaker.

Where to look?

Well, if you have woods in your backyard or a neighbor has woods that they are willing to let you explore, that's where I'd start. The closer to home and more convenient the tree is, the better. You don't have to drive to Oklahoma to harvest Osage orange in order to make a bow (though you may find yourself doing that soon enough...). If people know your intent, most are willing to let you take a tree from their woods.

That said, scavenging already down trees can be a resourceful way to obtain bow wood. Notice woodlots that are going to be cleared for development, or powerlines that are going to have trees trimmed back. If you keep your eyes out you can come across some quality wood just sitting there.

Caretaking

One of our core values at Primitve Pursuits is the attitude of the caretaker. To us this means holding the intent of leaving the forest better than we found it. The harvesting part of bow making is one of my favorite aspects because we get to go out on the landscape and really have a relationship with the woods. Without going into too much detail, a few simple questions can help guide you in your harvesting. What will the landscape look like without this tree? Is this the right tree to take for my bow, for this individual tree, and for the health of the forest? It doesn't take a PhD in forestry to harvest in a caretaking way. Look at how close trees are growing together. In 30 years will some of the younger saplings be choked out and not make it to adulthood? What is the predominant species of this forest you are in? Are you taking the only elm tree in a give area, or thinning out a tight grove of hickory trees?

Above all else, what I have found is that the earth is forgiving. When you are out there seeking to learn a skill and approaching the harvest with respect and gratitude, you will be guided. Don't be scared of taking the wrong tree, doing something is better than nothing, as long as your heart is in the right place.

What are we looking for in a prospective bow tree? As said before, it ought to be straight and knot free. One more important characteristic is that it be straight grained. The species that I'm recommending (**White ash, Hickory,** and **Elm**) are often growing very straight grained, and therefore are good woods to use. However, the structure of the grain can be elusive and a mystery until splitting

A single elm tree in the middle of this particular area. The elm can be seen with its lighter color bark. This tree would make a fantastic bow, but is not a good tree to harvest given the context on the landscape.

the tree into staves. One species of tree, hop hornbeam, shows us with its bark how straight the grain is.

I would recommend a tree between 4 to 6 inches in diameter for your bow. This could provide you with 2 “staves” once you split it out. Study the bark for imperfections, and signs of damage. The outermost growth ring of the tree has to be clean in order for the bow to be successful.

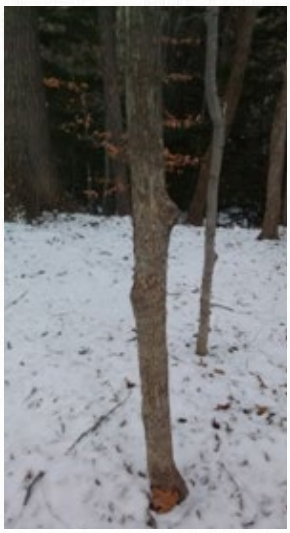
It is tempting to want to find an already dead piece of wood for a bow, so we don’t have to take a life. The wood has to be dried to make a bow anyway, right? Unfortunately when a tree dies of natural causes it quickly degrades. Fungi undermine the strength of the wood, and insects may also make the wood unusable for a bow. So we must take a live tree, or scavenge a tree that was cut down live (power line cuts, land development, etc.).

Giving Thanks

So you’ve found your tree, you are ready to harvest. Excitement fills your being as you get your saw ready. This is where I like to pause. This tree is alive, and of this earth just like we are. What legacy are we leaving behind? Is it one of respect and intention, or one of separation? Take a moment to thank this tree for the gift it is about to give us. If we don’t take the time to be grateful it is easy to forget it during the journey of bow making.

Harvest, Preparation, and Storage

I wouldn’t recommend taking a tree larger than 6 inches diameter without some background in tree felling. Felling a tree



Two examples of trees that would not make good bow staves. Notice the knots, imperfections, and twisted growth.

Spiral grained hop hornbeam

Straight grained hop hornbeam

can be dangerous work, and I recommend you bring a friend with you for this part of the journey.

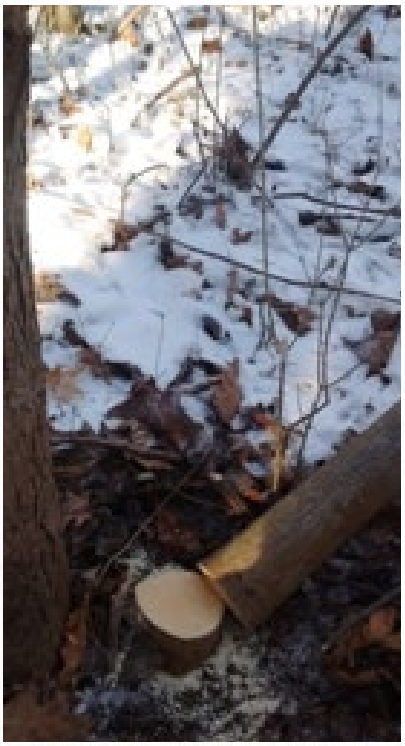
Notice if the tree is leaning in one direction or another. Is there a clear pathway for the tree to fall? On relatively small trees I like to use a small handsaw, and take the tree by first cutting halfway in at the base on the side of the tree I am intending it to fall towards. Then I will come in at a downward angle from the other side towards my initial cut, to help the tree to fall in the desired direction.

Usually only the first log length or 6 foot section of the tree is appropriate for bow making. With a small diameter tree the

Two hickory trees growing side by side. The one on the right is leaning and not doing well. This is the tree I will harvest for a bow.

Cutting in from the base, from the direction I want the tree to fall towards

Felling the tree



The cut stump was covered with dirt and leaves, allowing it to blend back into baseline

A view of the harvest site from a step back

higher up you get it will typically branch more and not give us a clean section.

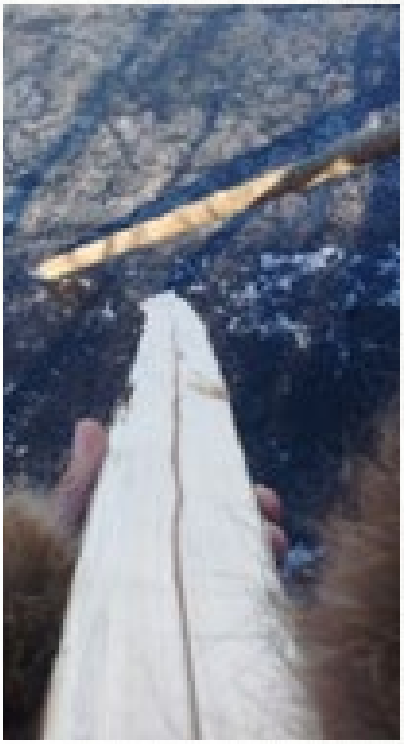
So once the tree is on the ground, measure out your stave length (about 6 ft- I use my wingspan plus a few inches to approximate the length). Regardless of the forest I am in I like to camouflage the harvest site, as a continuation of the caretaking attitude. I will cover the stump with mud or dirt so it blends back into baseline, and I will section up and drag away the top of the tree so as not to leave a clear harvest site. This helps leave the forest not looking like people are out there cutting down trees.

Now that you've got your log, hopefully you can carry it back home. At this point you have some options. If you need to set this project aside, you can let the wood season as an entire log. If you want to process it further you can go ahead and split it into staves.

When splitting a log into staves carefully study the log for knots and imperfections. We are looking for as straight and clean a section as possible. Typically there is an orientation of the log that will highlight this. Using a hatchet, wedges, and a maul, it is time to "unwrap the present" as we say. This is where we get a peek at the grain, see what is really going on underneath the bark. Hopefully it splits nicely and you now have two useable "bow staves".

From here, even if you are continuing into reducing your stave down into a bow blank, I will recommend painting the ends of the stave with wood glue. This is going to

Splitting the log into 2 staves with hatchets and a splitting maul.



prevent the stave from checking radially, causing you to loose inches off of each side of your bow. Also, do not store your stave near a heat source. We will talk about drying out our stave later on, but for now just store it in a relatively cool covered area such as a garage.

So that's all for our first lesson. Time to get out there and harvest a stave!

If you get finished with all of this tomorrow, don't worry, your stave can wait a week until our next installment of this instructional series. Some people let their staves sit for years to properly season before making a bow. Don't' worry though, we'll get you moving right along with the bow making journey next week.

Good Luck!

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Extra Picture Resources

An Elm stave being split out. Notice the interlocking grain woven back and forth. Elm is a tricky tree to split. Usually I use a small handsaw as I go to help cut these stringy fibers, allowing the wood to split.

Following the split and cutting the fibers as I go

2 beautiful elm bow staves!

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