

# How To Make A Survival Bow In The Wilderness

- Keep the task of making a bow and other primitive tools in mind when selecting pocket survival kit contents.
- The calories you harvest with your bow must exceed the calories expended searching for materials and constructing the tool.
- Cracking is the enemy of primitive bows. Proper drying, use of moisture barriers, stave selection, scraping vs whittling and wrapping limb ends all prevent cracking.

## Scenario set by the editor:

**“How to make a bow in the wilderness using only materials one would have with them on a regular outdoor ‘escape’.”**

I knew precious little about primitive bows when I build my first survival bow. I was just a kid, but I will always remember that first time taking game with a bow and arrows that I built myself because it felt like a real accomplishment at the time. It was only useful for a couple of days and I was lucky it didn't break. Perhaps some of you can learn from my mistakes.

I went on to build more and better bows, learning as I went. The best tips came from *Outdoor Survival Skills* by Larry Dean Olsen, a book recommended to me by David Holladay.

**Survival Bow Tools – Every survivalist should carry a core layer of survival/self-recovery gear on their person. This equipment should be carried in the pockets to prevent loss. I will list a few extremely multi-use items to include in such a kit that have applications in making a survival bow. While not an absolute prerequisite of survival by any means, tools reduce calorie expenditure, increasing chances of survival.**

- **Wood Saw** – A saw is useful for harvesting staves and making precise cuts. A thin, fine-toothed blade is preferable for making precise cuts.
- **Knife** – A sharp knife is useful for harvesting and processing materials, notching arrows and making precise cuts in duct tape, especially when used in conjunction with a flat surface such as a small or a few sheets of paper on top of a signal mirror.
- **Ferro Rod Striker & Ferro Rod** – The precise 90-degree spine and extreme hardness of a quality zirconium ceramic or zirconium carbide ferro rod scraper is a useful scraping tool, provided the edge is long enough. Fire is a very important tool for bow-making and can greatly speed the process.
- **100 MPH Tape** – Makes quick work of fletching arrows or atlatl darts.
- **Glue Stick** – Compact and effective adhesive useful for limb ends, fletching and mounting projectile points, applying sinew backing to bows. If a glue stick is not available, make hide or pine pitch glue.
- **High-Strength, Low-Stretch Cordage** – Bow string. Should support several times the draw weight of the finished bow, be light and abrasion-resistant. Unlike toy bows, it is the bow that flexes, not the string stretching, that imparts energy to the arrow.
- **60-80 Lbs Kevlar Thread** – Wrapping fletching, fore-shaft tubes and projectile points. Use with glue in place of gut or sinew or even braid or twist several threads together to make a bow string.
- **50-60 Lbs Coated, Knot-able Leader Wire** – Wrapping ends of limbs to form string notches and prevent splitting and cracking. Tie wire loops on bird arrows.
- **Modified MRE Hot-beverage Bags** – Moisture barrier to prevent cracking of limb tips during drying.

# The Survival Bow

The distinction between survival bows and primitive bows is worth noting. For someone living a hunter-gatherer lifestyle, building a proper primitive bow was well worth the effort, but this may or may not be the case in a survival situation.

When you see survivalists hunting with bows or atlatls in survival challenges on TV, they nearly always bring them with instead of making them on the spot because an authentic primitive bow or atlatl and projectiles are time-consuming to make.

In a survival situation in which self-recovery or rescue is likely to happen quickly, a single kill with an inferior bow that does not take days to make, may be the wiser choice. In a longer-term scenario, invest the time in a proper weapon. Unfortunately, you may not know how long you will be using the bow.

Also, understand when it is worth the effort to make a bow. Foraging wild edibles, fishing or trapping typically delivers better return on investment.

For hunting weapons as you embark on direction sampling searches, rabbit sticks, rodent skewers, gigs and weapons require less time and fewer calories to build.

## Select a Bow Stave

When the bug bit to build my first bow, tamarisk (*Tamarix*) was the only wood in the area that was long, straight and elastic enough for a bow. While not ideal, it did manage to get the job done. Wood only has an elasticity of around one percent.

It is the length of the limbs and a low-stretch string which impart great velocity to arrows with relatively little movement of the limbs of the bow. The more the limbs bend, the

likelier the bow will crack, so keep the physics in mind as you construct and use the bow.

## Good Species for Survival Bows

- **Serviceberry** (Almelanchier) – Genus of the rose family found in every state of the US except Hawaii.
- **Mountain Mahogany** (Cercocarpus) – Another Genus of the rose family found in the Western US and Mexico.
- **Ash** (Fraxinus) – Genus of the olive family found in much of North America, Europe and Asia.
- **Fruit Trees of the Genus Prunus** (Prunus) – This genus includes cherry, apricot, peach, plum, nectarine and almond trees include some 430 species across the northern hemisphere.

These are some great species, but for survival purposes, a functional bow can be made of most hardwoods. Avoid pine, poplar, cottonwood and willow (Salix), not to be confused with desert willow (Chilopsis) which is usable if necessary.

A good bow stave should be straight and free of knots and large branches. The diameter of this type of bow should be about 2 inches thick, including the bark, in the center where the hand grip will be. The length of the bow should be around four feet, but can be shorter or longer than that, as determined by the height of the archer or availability of materials.

Note that the branch will be thicker at the base than at the top and the thicker end will become the bottom limb, just as it grew out of the ground or trunk.

Saw the stave clear through instead of breaking it at any point or the ends of the limbs will develop cracks, which is a frequent problem, especially in the Rockies where it is so dry that the ends of a stave can dry out and crack minutes after cutting a green stave.

One way to prevent the ends of the stave from drying out too quickly is to put plastic bags over the ends and tie them in place, which I will address in the section on seasoning the staves.

If you cannot find a staff of sufficient length, shorter and smaller-diameter segments can be bundled together and tied to create a bundle bow. Whichever type of bow you build, collect and season multiple staves at a time.

Primitive bows are far more likely to break than their commercial bows and starting two or three bows will cut construction time by days should you need to replace your bow.

Dead wood laying on the ground will too dry and brittle, resulting in fragile bow. If you can find a sapling or branch on a tree killed by fire or knocked down by the wind, you are in luck. Otherwise, you are going to have to use green wood and season it.

## Season if Necessary

Most of the time, only green wood is available. The wood must dry, but if it dries too fast, it will crack. Depending on the humidity, temperature and other options, process may need to be adjusted if a stave cracks.

After scraping off the bark, protect the ends with plastic bags or another moisture barrier and let them dry overnight in cool, dry storage area to prevent them from drying too fast and cracking. If harvested in the daytime, keep them out of direct sunlight until the following day once the bark is removed.

If they are drying out too fast and cracking, leave the bark on longer.

**Survival Tip:** I keep two MRE hot beverage bags in my pocket survival/self-recovery kit to collect and treat water,

irrigate wounds, keep tinder dry, collect food and near-endless other uses ... including moisture barriers for seasoning bow ends and first aid.

I tape the corners and install brass eyelets so the bags can be carried like a pouch or canteen and suspended to keep them off the ground and away from twigs and cactus spines which can puncture them.

Hot beverage bags also withstand considerable heat which is a useful property for boiling water via the introduction of heated rocks which can be suspended in the water using a little aluminum sheeting and heat-resistant Technora or Kevlar cordage.

## **Determine the Bend**

Every stave has a natural bend. Seat the thicker end of the stave on the ground hold the top of the stave in place with an outstretched weak-side arm. Pull on the center of the stave with your dominant hand, turning and gently flexing the stave until you can feel the natural bend of the stave. Then mark the front of the bow with a light scratch. Every limb or sampling has a natural bend imparted by irregularities in growth, wind, gravity and physiology.

## **Shape the Bow**

I say 'shape' instead of 'carve' because a bow should really be planed or sanded as opposed to carved. Using a knife, it is tempting to whittle the bow which will leading to cracks in a primitive bow no matter how careful the carver. I made this mistake on my first bow.

One of the best ways to remove material is to scrape the stave with a stone tool held at a 90-degree angle. A scraping action with a stone edge removes material in a similar fashion to a

plane. This method avoids cuts and damage that will split under load.

Find the center of the stave using a length of cordage or cloth. Mark the length and then fold the length in half to find the center and mark the center with a light scratch on the stave. Four inches in either direction will be the handle.

Make sure that the large end of the limb or sapling is the bottom limb of the bow, just as it grew from the trunk or out of the ground. Shape the upper limb first since it is the thinner end of the stave and once it is shaped, shape the lower limb to match. It is easier to remove material from the larger limb to make it match the smaller than vice versa.

For this type of bow, make the cross-section of the bow oval in shape and give the limbs a graceful taper to the points. Do not notch the points for the string as it will invite splitting. Instead, rough the surface, apply glue and wrap with strong thread or sinew.

If you have a source of fat available, the bow should be greased. If not, grease the bow after your first kill to prevent cracking.

## **Set the Recurve**

Set the Recurve into the tips after greasing. This is accomplished in much the same manner as straightening arrows. Heat a tip over coals, bend it over a round rock and let it cool in position.

## **Arrows**

My first arrows employed wooden shafts. I straightened them by heating and bending them and fire-hardened the tips but did not fletch them. Still, they got the job done, so keep your calories spent vs gained in mind as you decide how much work

to put into a survival bow.

## Shafts

Reeds, willow or any sufficiently straight, dried material of the correct diameter and at least 2 feet in length can serve as arrow shafts. Reed shafts are straightened by greasing them and heating and then bending.

Wooden shafts are selected from young, straight shoots and should be sun-dried for a day, peeled and dried in the shade for two days or heated over coals to cure them. Once completely dry, the shafts can be straightened, smoothed, nocked, the points fire hardened, fletched and tipped.

## Projectile Points

The tips of my first arrows were fire-hardened, but not tipped. For small game, a casing of spent center-fire pistol brass makes a great blunt tip for taking small game. Projectile points can be knapped from the bottom of a glass bottle if available or from stone or carved from bone or antler.

Spent shell casings can also be stomped or pounded flat and sanded with rock to create projectile points. Points can be notched, tied and glued into place. Reed shafts should be cut about halfway between joints to create a hollow tube that can accept a point set into a hardwood fore-shaft.

Hardwood shafts can be notched and tipped with broadheads like the fore-shafts of reed arrows.

## Fletching

I used arrows without fletching on my first attempt at bow because I lacked materials to fletch them. Without fletching,



arrows do not fly as straight, especially at longer ranges. Fletching creates drag if the back end of the arrow begins to wobble out of alignment.

This drag keeps the point of the arrow pointed at the target and the arrow on course.

Unfortunately, feathers suitable for fletching can be hard to come by. Fortunately, un-fletched arrows are still capable of taking game. placing the fatter end of the arrow shaft toward the target can also help arrows travel straight with an effect like a rock in a sock, and this is what I relied on with my first bow.

It requires honed stalking skills as the hunter must get very close to game, but at very short ranges, such as hunting frogs, fletching does not matter as much.

The most common fletching materials are duct tape and feathers. Feathers can be cut and split and attached to arrow shafts using fine cordage and glue. There must be as many methods for fletching arrows as there are cultures who use bows.

Most survivalists carry duct tape or 100 MPH tape in pocket survival/self-recovery kits. Tape can be used to fletch arrows with minimal work compared to finding and preparing suitable feathers and attaching them.

# How to Aim a Bow Better

The United States Archery Men's Team won the Silver Medal at the FITA Olympic Round - 70 m in the 2012 London Olympics. This has driven the popularity of archery in the country to a significant extent.

18.9 million Americans, 18 years or older, engage in archery.

Archery can seem a little overwhelming for beginners of all ages. Proper tips on posture, diet, fitness and equipment to be used, can make the sport a lot more enjoyable.



## Stance

Face the target at about 45 degrees.

## Draw



Don't use a bow that is too heavy for you to raise.

Don't keep your bow arm too stiff while extending it toward the target.

Grip the string firmly in your fingers or in the jaws of a mechanical release aid.

Keep the bow grip loose and pull back the string smoothly towards your face.

Keep both feet parallel, 18 to 24 inches apart, and not perpendicular to each other.



Both feet should be pointing directly towards the target.

## Bow Grip



No need to squeeze the life out of the bow, as it can degrade accuracy. Hold it firmly, but gently.

Make sure you can close the grip around the bow by touching your forefinger or middle finger with the thumb.



Use an open bow hand with a wrist sling, in case the loose grip seems difficult.

## Anchor

After drawing the string, find a comfortable anchor point by aligning your aiming eye with the string.



You can touch your index finger to the corner of your mouth and drop the thumb below the chin for a better anchor point.

## Release



Relax your fingers after taking aim.

Release the string smoothly without a jerk.



## Aim

Aim with bowsights, preferably with a laser rangefinder.

Keep aiming until the arrow hits the target.



Don't aim then focus. Focus first; then fix your aim.

Relax and breathe evenly.

Don't over-focus.



Don't move your eyes from the target.

Shoot smoothly, just like you do

## Follow-Through

Focus on the target. Get ready to shoot. You are sure to hit the bull's eye.

## Knocks

A knock is a notch in the back of an arrow that straddles the bow string. Reed shafts should be cut just under half an inch below a joint to create a strongnock. Wooden shafts must be notched. Both types of shafts should be wrapped with sinew or strong thread to strengthen the knock.

## Bowstring

When I made my first bow, I strung it with a length of paracord, kernmantle sheath and all. A heavy string slows down the arrow, especially if it is heavy in the center where it is 3.5x worse than the same weight at the limbs. A bow string should be a foot longer than the bow it will string.

## Natural Materials

Bowstrings made of natural materials must be processed and braided to join fibers to achieve sufficient length, a process that can take days to make a strong string.

Twisted sinew is one of the most effective natural bowstring materials, but gut and leather are natural materials that will also work. The sinew string is finished by rubbing and smoothing with saliva and allowing it to dry. Care must be taken to keep sinew, gut and leather dry or they will stretch, weaken and break.

If enough sinew and glue are available, many Native American bows were backed with sinew (on the side facing away from the archer) which added durability, strength and compensated for defects in the stave.

Bowstrings can be made from plant fiber. In my neck of the woods, stinging nettle is an abundant option. Hemp and other vegetable fibers work. Linen and flax are preferred natural fibers, but the processing can take many days and typically

involves the time-consuming creation of tools to process.

## Man-made Fibers

Unless a survivalist literally escapes in his boxers, he should have cordage on his person. Necklaces and bracelets can be made of Technora or Kevlar which are low-stretch, heat and abrasion-resistant fibers that can serve as a friction saw for restraint escape, cordage or a bowstring and do not create the hygiene problems of para cord in these roles.

I do not want my necklace or bracelet to soak up body fluids and hold them next to my skin, so I am not a huge fan of para cord for these applications.

**Survival Tip:** I lace my boots and shoes with composite cordage where possible. I lace dress shoes in sheathed Kevlar which is thinner, and boots with kernmantle-sheathed composite-core cordage. I pack Kevlar thread, Fire-cord, high-strength Technora, knot-able leader wire, fishing line and other useful cordage types in my boot laces.

This way, I always have cordage types suitable for a variety of tasks on hand. I make it by measuring my boot laces, gutting an appropriate color of para cord, removing the inner strands from the kernmantle sheath and replacing them with more useful cordage and then crimping new aglets in place.

Normally, a bowstring should be low-stretch, but this can cause shock to a primitive wood bow, so do not over-draw a wooden survival bow strung with Kevlar, Technora and similar fibers.

## Knots

The timber hitch is a traditional knot for securing bowstrings amongst western archers. For a survival bow, Larry Dean Olsen suggested attaching one end of the string permanently and then

looped two or three times at the other end and secured with two half hitches.

Keep knots simple with primitive cordage.