365 ESSENTIAL SURVIVAL SKILLS

FIRE

SHELTER

WATER

FOOD

KNOWLEDGE THAT WILL KEEP YOU ALIVE








CREEK STEWART

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Dedication

This book is dedicated to Maumee Scout Reservation in Indiana. It was there where I earned the Wilderness Survival Merit Badge that would ultimately fuel a life's passion in learning and teaching self-reliant skills.

I would also like to thank a certain crow (you know who you are) for reminding me of that passion later on in life. To read more about the crow, visit www.creekstewart.com/the-crow.

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Introduction

Learning survival skills can be overwhelming, especially to someone new to the subject. The vast sea of available information offered in books, videos, courses and various social media platforms can be confusing, frustrating and sometimes downright misleading.

Having taught survival skills to thousands of people from all over the world for almost two decades, I've discovered two things about learning survival skills. First, students learn best when they are comfortable, well fed, hydrated and unafraid. Second, students develop a deeper understanding of a skill when information is presented in short, concise nuggets with ample time in between skill sets to digest, practice and gain personal hands-on experience with the skill. I have written this volume with these observations in mind.

When I first sat down to write this book I felt overwhelmed by the task of compiling 365 of my favorite survival skills. I soon realized that 365 skills are just the tip of the iceberg when compared to the incredible amount of information, tips and tricks I wanted to share. Much time has been taken to sort and hone this list of skills so they not only offer value to an experienced student of survival – but also not overwhelm a greenhorn survivalist.

In this book you will find 365 of the best survival skills, tips and tricks available in the world today. There are skills for all environments, all seasons and all people. Some I have learned from others and some I have learned on my own during a lifetime of

training in the field. All of them have the potential to impact the thin line between life and death in a survival scenario.

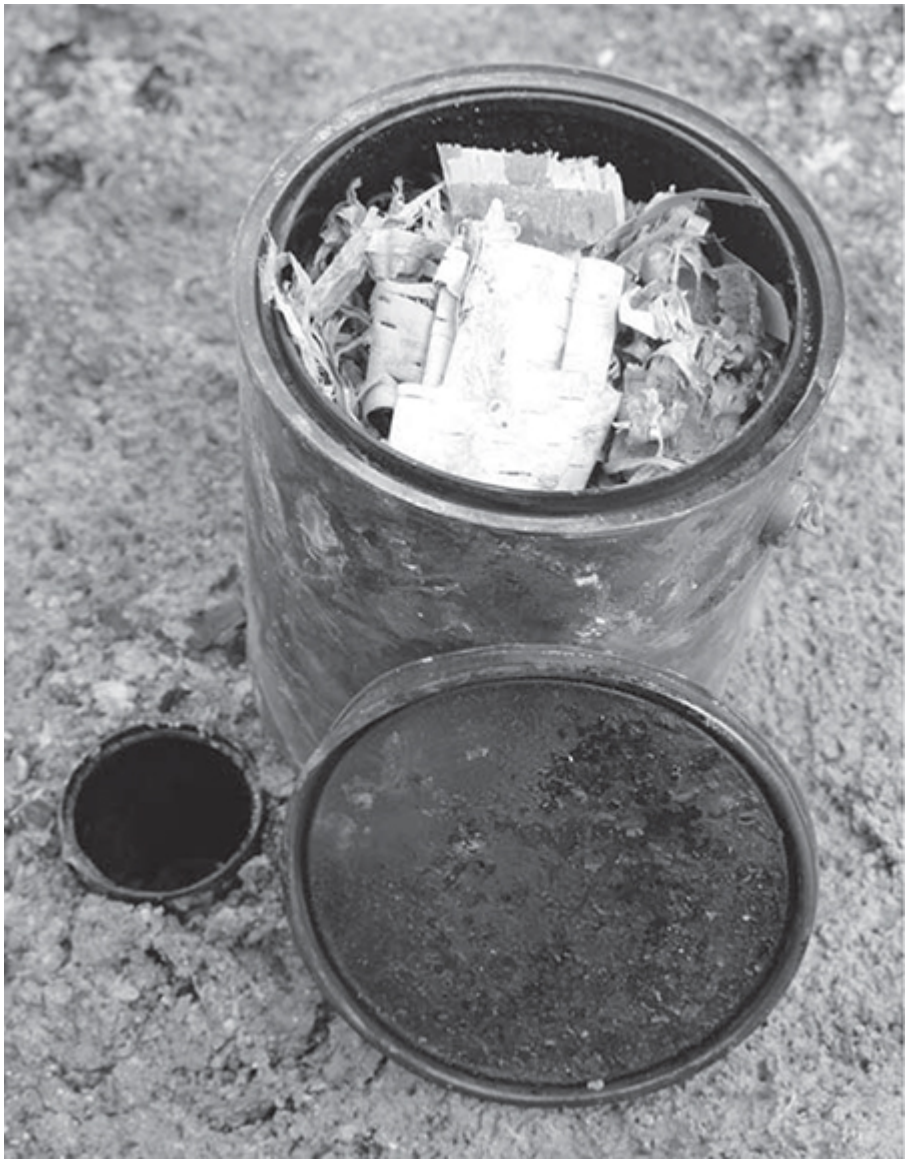
I have loosely organized these “survival nuggets” according to a four-season calendar. Thus, January 1st would correlate to the first skill in the book, July 4th the 185th skill and December 31st the 365th. Theoretically, a reader could learn a new survival skill every day of the year. It is my opinion, however, that in order to truly learn a skill one must practice it with their own hands, and a new skill every day doesn’t provide sufficient time for hands-on application with each skill, although it is an admirable goal.

I wish you safety and adventure as you study these 365 survival nuggets. Remember, it’s not IF but WHEN.

WINTER

SKILL# 1
How to Extract Birch Oil

Birch oil is what makes bark from the white birch tree so flammable. It has many uses when extracted, including a primitive adhesive, leather preservative, water proofer and insect repellant. In order to extract the oil it must be “cooked” out of the bark in a simple two-stage oven. First, fill a metal container (can be made from any fire-resistant material) with strips of birch bark. Make sure to put a lid on it because this container will need to be baked in a fire. When baked, the oil will cook from the bark and drain to the bottom of the container. A hole placed in the center of the bottom will allow it to drain out. A smaller container should be buried in the ground with the top flush with the bottom of the larger container. The larger container of bark should be placed directly over it, making sure the hole aligns with the top of the buried container. Finally, a fire should be built around the bark-filled container and kept burning for one hour. Wait until everything has cooled to retrieve the lower container now with the birch oil inside.



Birch bark packed into an old paint bucket with a small soup can buried to catch the oil.

SKILL# 2
Survival Knots: Constrictor Knot

All survivalists are masters of the rope. The constrictor knot is the anaconda of knots. It's typically used to coil around and bind things together, such as a bundle of sticks. It is essentially a combination between an overhand knot and a clove hitch. Watch video tutorial #1 for complete instructions at: www.creekstewart.com/365-book-videos

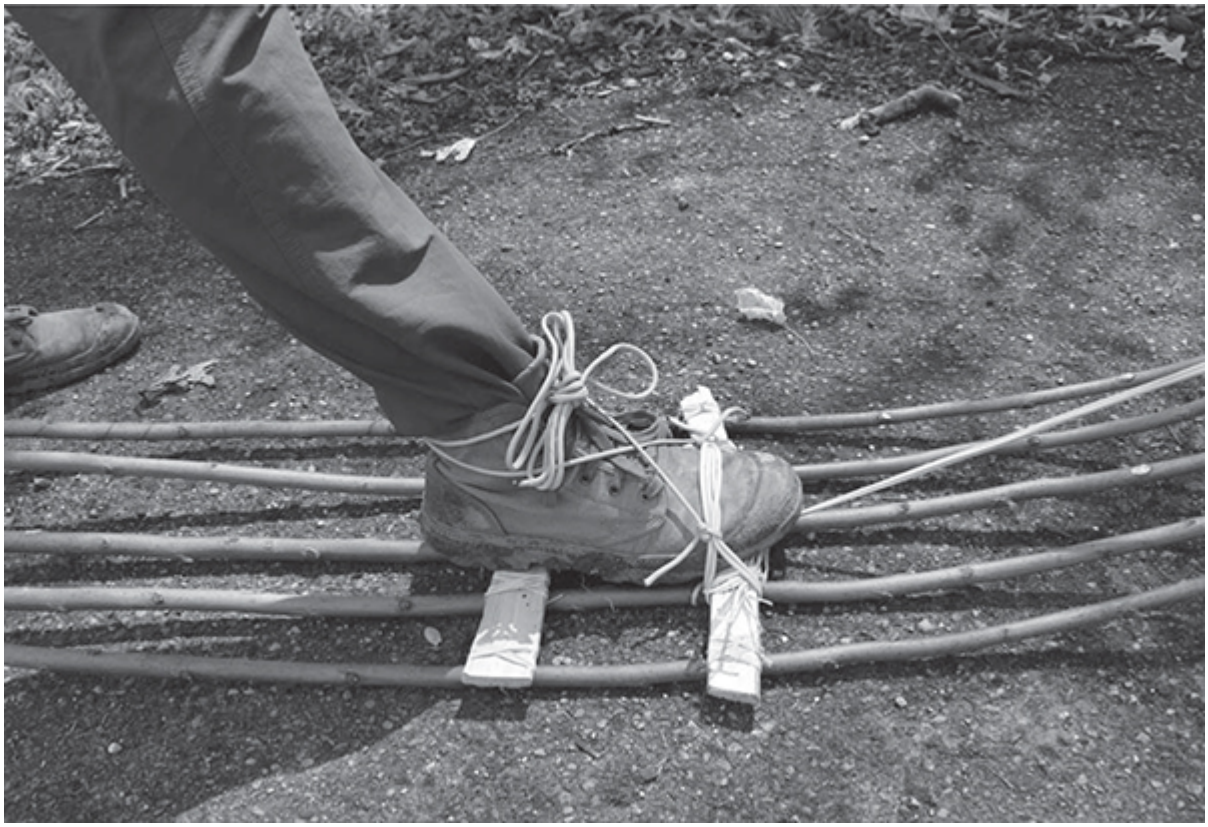
SKILL# 3
Makeshift Bush Branch Snowshoe

Walking in deep snow can be nearly impossible without snowshoes. Snowshoes increase the surface area of the feet and distribute the weight of a person to a larger area. This helps prevent sinking deep into the snow with every step. Makeshift bush shoes can be quickly and easily made from evergreen boughs that often grow in environments with heavy snow. Three to four evergreen boughs approximately 20 inches wide by 36 inches long should be bound together at the end using a constrictor knot. Make two of these, one for each foot. A flat cross brace approximately 1 inch thick by 10 inches long by 2 inches wide should be lashed across the bundle to support the ball of the foot. The heel should be free to lift so the shoe travels parallel with the snow, allowing for an easier and more natural step.

Snowshoe made from pine branches.

SKILL# 4
Figure 8 Snowshoe Hitch

The accompanying photo illustrates a field expedient method for binding snowshoes that allows the heel to lift freely from the back of the shoe. A bridge of rope is first tied across the brace that supports the ball of the foot. The foot toe should fit snugly under this bridge. Then, two bindings are tied to the rope bridge, one on each side. These are crossed over the top of the foot, wrapped around the back of the boot and tied at the front exactly like you would tie a bootlace.



Simple snowshoe boot lashing.

SKILL# 5
How to Make a Tinder Bundle

The tinder bundle is a prepared nest of fibrous and dry materials. It is the part of a fire lay that is ignited first to start a fire. A tinder bundle consists of two main parts – the body and the core. The body comprises the bulk of the tinder bundle. The core is the center of the tinder bundle where the ember or match will ultimately be placed. Imagine a cross between a football and a bird's nest. It should be the size and shape of a football with a small depression in the middle about the size of a golf ball. The football portion should be made from dry fibrous tinder materials such as dead grasses, cedar bark, palm fibers, dead yucca leaf fibers, inner barks or plant fibers. A palm-size wad of your finest, fluffiest and driest material will comprise the core.

SKILL# 6
Three Fire Starting Tree Barks

Finding fire tinder is a critical survival skill. The bark from the following three trees makes excellent fire starting tinder:

1. White Birch: The papery white outer bark and tan inner bark of the birch are rich in very flammable oils that will burn like crazy when struck with a ferro rod (must be fuzzed up) or match.
2. Cedar: The stringy, fibrous bark of the cedar can be scraped and "bushed" between the palms of the hands to make one of the best tinder bundles I've ever used.
3. Cottonwood: The inner bark fibers of dead cottonwood trees make incredible fire tinder. They are thin and fibrous. Since it's found beneath the thick outer bark it's also typically very dry. Watch video tutorial #2 about identifying and using cottonwood bark fibers at: www.creekstewart.com/365-book-videos

SKILL# 7
Survival Trees: Cottonwood

Cottonwoods were a favorite among Native Americans across North America to form dugout canoes, often coal burned. They have a triangular shaped leaf with toothed edges. The bark is deeply fissured. Like the basswood, cottonwoods grow primarily around water. I've seen massive cottonwoods along streams from Arizona to Virginia. The dead dry inner bark of the cottonwood makes incredible fire tinder because of its thin fibrous paper-like nature. The wood is soft and is an excellent candidate for bow drill hearth and spindle as well as hand drill hearth.

Cottonwood inner bark fibers.

SKILL# 8
Three Nutritious Winter Teas

Wild teas don't provide calories, but they do provide valuable vitamins, minerals and uplifting flavor. Here are three teas that can be made in winter when most other tea sources are not available.

1. Rose Hip Tea: Rose hips, the small red berry fruits of the wild rose, make a mild rose flavored wild tea that is rich in vitamin C. Cut a small square of fabric and tie around six to 10 rose hips. Crush them with a stick and steep this makeshift tea bag in hot water for three to five minutes, then discard. Do not eat rose hips due to tiny inner hairs that will irritate the mouth and throat.
2. Pine Needle Tea: Pine needle tea is very robust and rich in vitamin C. Crush a handful of pine needles and steep in hot water for 10 minutes. Then strain out the needles and drink.
3. Birch Twig Tea: Boil a palm full of white birch twig tips about 2 to 3 inches in length in water for five minutes to brew a delicious, slightly sweetened tea.

Remaining rose hips after the roses have died away.

SKILL# 9
Survival Plants: Sotol (Desert Spoon)

Native to America's arid Southwest, the sotol plant was used extensively for fire making by primitive cultures. It is an evergreen and produces long, thin, sword-shaped leaves in a circular pattern around the base. It can be readily identified by the 10- to 20-foot tall flower stalk that grows from the middle of the plant. The top resembles a bristly pipe cleaner. This dry, woody stalk is hands down the best wood for friction fires that I have ever used. In fact, primitive cultures used it in the Fire Plough method of fire starting.

Desert sotol with a dead, dry flower stalk.

SKILL# 10
Start a Fire Using the Fire Plough

The fire plough is one of the more material sensitive methods of friction fire starting. It is most effectively done with woody stalked plants from the desert such as yucca and sotol, and also a variety of palm wood in the Pacific Islands. A shallow groove is cut in a long hearth board that rests on the ground. A smaller plough stick with a V-shaped chisel tip is pushed forwards and backwards in the grove to generate friction heat – and ultimately an ember. This is a skill best taught by video. Watch video tutorial #3 for complete instructions at: www.creekstewart.com/365-book-videos

SKILL# 11
Survival Knots: Evenk Hitch

The word “Evenk” comes from the Evenk people in Siberia. They use this hitch to tie up their reindeer. It is a quick release hitch that I use as the anchor knot when erecting a canopy shelter. It can serve as the anchor knot (first knot you tie) when stretching a rope ridgeline or the anchor knot (on the grommet) when attaching a guy line to a tarp. Watch video tutorial #4 for complete instructions at: www.creekstewart.com/365-book-videos

SKILL# 12
Survival Knots: Quick Release Tautline Hitch

The tautline hitch is a favorite of woodsmen and women for tensioning guy lines on tents or canopy shelters. It can be used opposite the Evenk Hitch to draw a line very tight, such as when erecting a clothesline or canopy shelter ridgeline. Watch video tutorial #5 for complete instructions at: www.creekstewart.com/365-book-videos

SKILL# 13
The Sotol Fire Saw

Another method of generating a friction fire ember from the dead dry stalk of the sotol plant is the fire saw. The thick lower portion of the stalk should be cut to a 2-foot length and then split in half. At the end of one half a split should be made and a pebble inserted to keep the split open about ¼-inch wide. An ember catch should be placed under the split to catch the friction dust and ember. A smaller “saw” cut from the other half with the bottom cut into a sharpened V shape is then used to saw back and forth perpendicular across the split to generate friction and heat. After rigorous sawing, an ember will collect and develop in the split, which can then be placed into a tinder bundle and blown into a flame.

Sotol fire saw kit.

SKILL# 14
Canopy Shelters: The Wedge

The wedge canopy shelter is one of the easiest and most efficient options available. It only requires a few stakes, one piece of cord and a tree. One corner of the tarp is tied at waist height against a tree and the other corners of the tarp are staked to the ground. In cool weather, the back of the shelter should be positioned against the wind. The knots used are the Evenk Hitch and Quick Release Tautline Hitch.

Improvised wedge canopy shelter using a poncho.

SKILL# 15
How to Mask Scent

Scent masking is important when setting traps and snares for game that may be leery of human scent. The best primitive method for masking the human scent on your hands is to wash them thoroughly in a local creek or pond, without using soap of course. Next, smear on a little mud and work it through the fingers. Wipe this mud off in the grass or using leaves. Finally, rub wood ash or charcoal on your hands from your fire pit. This method will prevent the transfer of human scent from your hands to trap and snare parts while handling and carving.

SKILL# 16
Survival Trapping: Paiute Deadfall

The Paiute Deadfall is one of the most effective traps I've ever used and is designed for small game such as rats, squirrels, chipmunks and ground squirrels. As can be seen in the photo, the trigger system utilizes a post stick with a chisel-tip top, a lever stick with a No. 7 notch, a long bait stick and a small wooden paddle. The lever stick pulls on the paddle, which is hinged around the post stick and applies pressure to keep the bait stick in place against the balanced weight. Watch video tutorial #6 for complete instructions detailing how to set the Paiute Deadfall at: www.creekstewart.com/365-book-videos

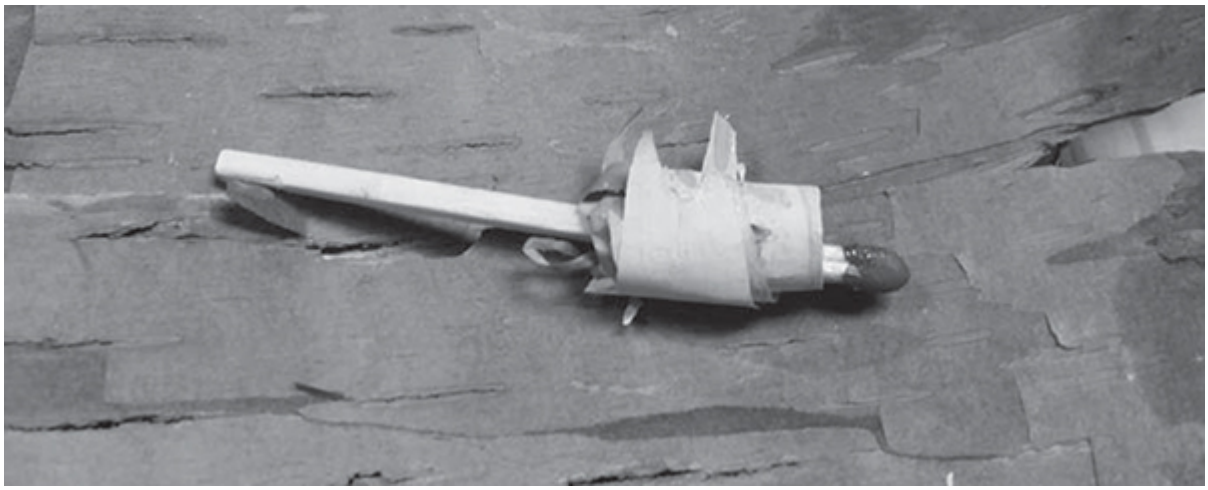
Paiute deadfall using a heavy log.

SKILL# 17
How to Cook a Wild Rat

Rats (especially urban ones) are notorious for harboring disease. From bubonic plague to hantavirus, one should handle wild rodents with caution. However, rats should not be ignored as a viable and nutritious survival food with proper cooking and handling methods. After dispatching, handle rats with a 36-inch long forked stick. Before skinning or gutting, place the rat directly in your fire to kill all fleas and parasites. Leave it in the fire until all of the hair is singed off. Remove it from the fire and gut it using rubber gloves if possible. If gloves are not available, remove the intestines with small forked sticks. Finally, roast or boil the rat until it's extremely well done. Do not consume organs, brains or bones.

SKILL# 18
How to Make a Boreal Match

The frigid northern boreal forest is ironically filled with some of the most flammable trees on the planet, including white birch and balsam fir. If surviving there, these two trees can be used to create what is called a Boreal Match. Thin ¼-inch wide strips of birch bark can be wrapped just under the head of a match and cemented in place with sticky balsam fir sap. This collar of flammable bark and sap will quickly ignite when the match is struck and provide a much larger and more durable flame than the matchstick alone.



Match head wrapped with birch bark and balsam fir sap.

SKILL# 19
Survival Knots: The Jam Knot

The jam knot is used to lash the intersection of two poles. Whether lashing a ridgeline between two trees or constructing a raised bed frame, the jam knot is easy to tie, uses a minimal amount of cordage, simple to untie and can be cinched to create a very trustworthy lashing. Its applications in primitive shelter building and camp-craft are only limited by one's imagination. The jam knot is very simple in design and requires only two overhand knots to construct. Watch video tutorial #7 for complete instructions at:
www.creekstewart.com/365-book-videos

SKILL# 20
How to Make a Survival Post Bed

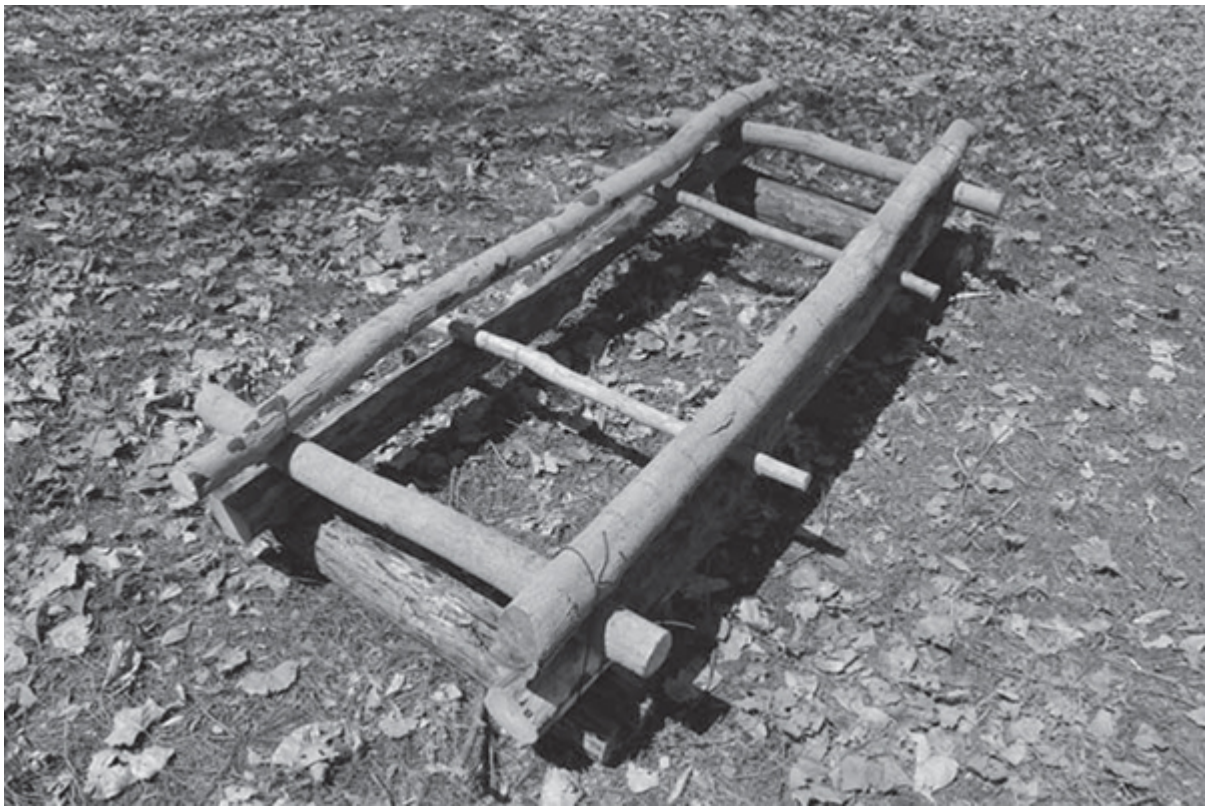
A post bed is the most basic of survival bedding concepts. Its only purpose is to help contain and keep bedding materials (leaves/grasses/pine needles) in place while sleeping. If not contained, these materials will shift, spread and slowly disappear throughout the night. A post bed is simply two poles at least 4 inches in diameter that are staked in place 6 to 12 inches wider than your body. Then, the interior of this space is filled with dry leaves, grasses, pine needles or any materials that will help insulate your body from the cold, moist ground. At least 12 inches of bedding material is recommended.

Post bed before filling with insulation.

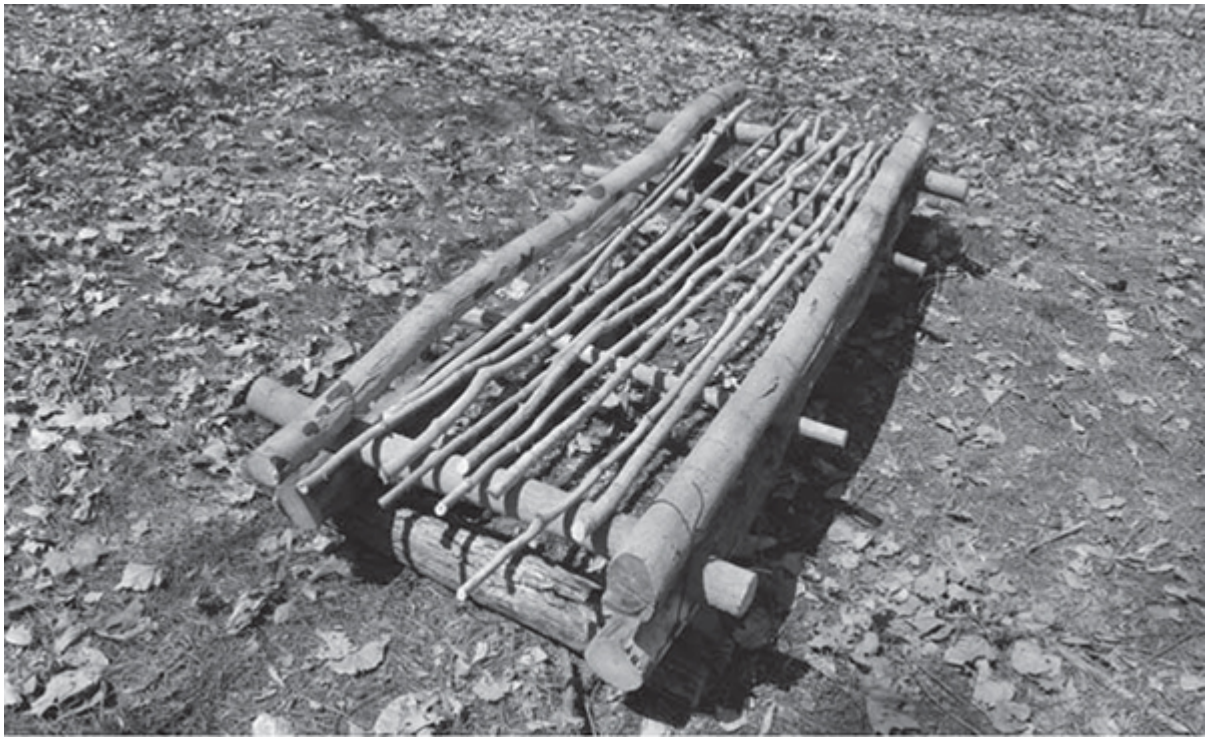
SKILL# 21
How to Build a Raised Frame Survival Bed

What lies beneath you is equally important to what covers you in a survival shelter. During cold weather and in the absence of expensive modern insulating sleeping pads and bags, it is prudent to sleep 12 to 24 inches off the ground on a raised bed. Using the jam knot at the corners, construct a multilayer log cabin-style box frame using strong logs that are 3 to 10 inches in diameter. Then, slide in two 2-inch diameter crossbars under the top frame logs. These are repositionable braces for behind the knees and lower back. Next, cut and lay across the length of the bed small ½- to 1-inch diameter flexible saplings to serve as bed springs. Lastly, place evergreen boughs, branch tips, dry leaves or grasses on top for insulation and comfort.

Step 1



Step 2

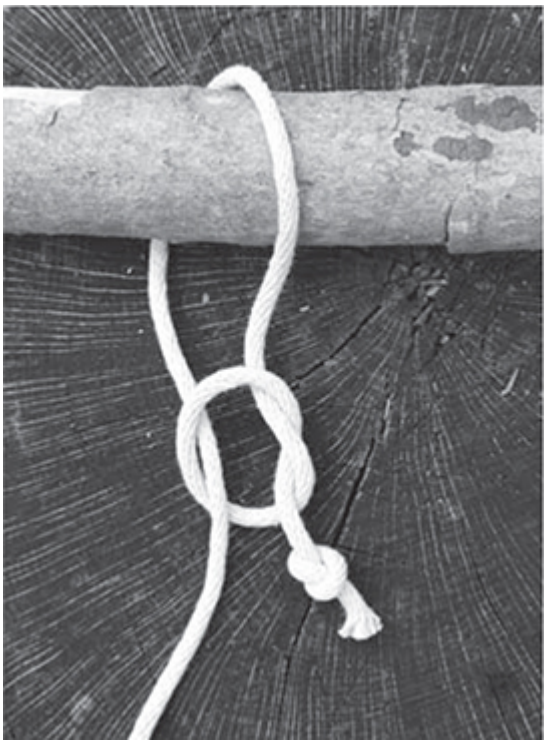


Step 3

Step 4

SKILL# 22
Survival Knots: Slip Knot

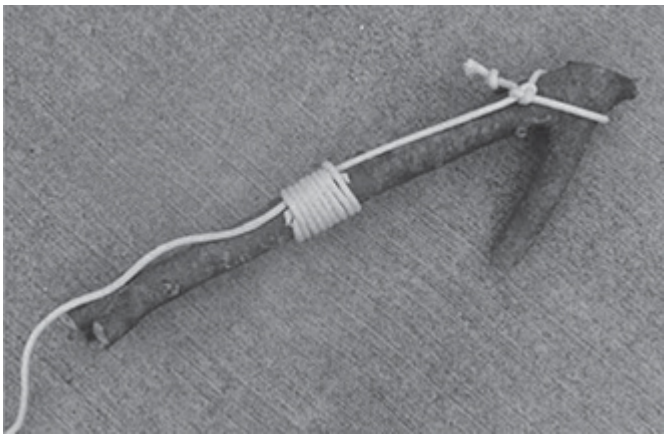
The slip knot has a variety of uses in survival situations. It can be used as a simple noose, a quick hitch, and also to secure guy lines to tarps. It is in essence an overhand knot around the standing end of the rope that can slide tight or loose. Another overhand knot at the end of the line can act as a stopper knot.



How to tie a slip knot.

SKILL# 23
Make a Primitive Grappling Hook

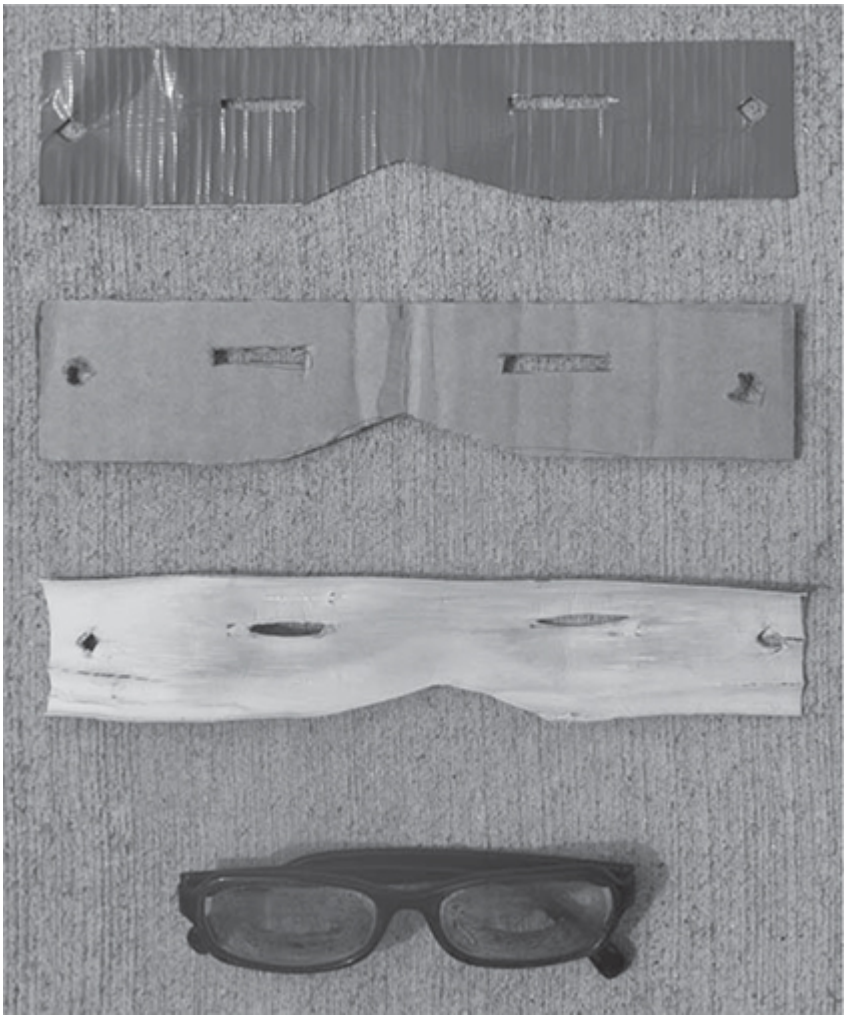
It's not hard to imagine a need for a grappling hook to throw and secure a rope into a tree or up a wall or cliff. When no modern implements are available, a suitable hook can be cut from the fork of a hardwood sapling such as oak or hickory. This fork, when inverted, makes a workable hook. Tie a slip knot or bowline over the top and whip lash the rope along the shaft of the hook to secure it in place. A hook at least 2 inches in diameter should be used if it's expected to hold weight.



Grappling hook made from a forked sapling.

SKILL# 24
Prevent Photokeratitis with Improvised Snow Goggle

Snow blindness (photokeratitis) is a very real phenomenon. Imagine sunburn-like symptoms except they occur on your cornea. It's not only painful but it can literally blind you until it heals several days later. It's caused by the reflection of the sun's rays against the snow hitting your unprotected eyes. The best solution is an improvised pair of snow goggles designed to limited the amount of light that reaches your eyes. Cut a strip of flexible fabric, cardboard, rawhide or bark about 2 inches tall by the length of one temple to the other. Cut out a piece for the bridge of the nose and create two slits where the eyes are, each about 1 inch long by ¼ inch wide. Poke holes for a string of some kind and tie it on. If you're wearing prescription glasses, charcoal mixed with chapstick or animal fat can be used as a paint to color the lenses except for a slit in the middle.



Improvised snow goggles – duct tape, cardboard, tree bark and soot smudged glasses (from top to bottom).

SKILL# 25
Survival Plants: Garlic Mustard (Alliaria petiolata)

Garlic mustard is one of the few wild plants you'll see poking its leaves out through snow. It is extremely cold tolerant and can be found all winter long, even here in Indiana. It is a bi-annual, meaning it has a two-year life cycle. The first year it produces a basal rosette of rounded, somewhat heart-shaped leaves as shown in the photo. The leaves have very defined veins, which is how I first learned to identify the plant. It produces a stalk the second year with little white flowers and long tubular seedpods. The leaves have a garlic flavor (and smell when crushed) but I find them to have a slightly bitter aftertaste, especially when picked from older plants. They're best used as a flavoring – cooked in stews and stuffed into fish and game birds. The little black seeds (found on the second year plant all winter long) have a horseradish flavor and add a zesty flavor to any boiled root vegetables.

First-year garlic mustard – notice the deep veins.

SKILL# 26
Winter Fishing Bait: The Goldenrod Gall Fly Larvae

Female Goldenrod Gall Flies inject their eggs into the stem of the goldenrod plant during spring and summer months. After hatching, the fly larvae feast on the succulent plant material inside of the goldenrod's stem. This parasitic behavior causes the stem to deform into a gall which looks like the goldenrod plant swallowed a grape. Oftentimes, the fly larvae will winter inside of the gall and can be extracted at any time to be used as fishing bait. In winter, when live fishing bait can be difficult to find, this could be just the trick you need to put fish over the fire.

Goldenrod gall housing fly larvae.

SKILL# 27
Survival Knots: The Bowline

If you can remember the following phrase you will never forget how to tie the bowline knot: The rabbit runs out of the hole, around the tree and back in the hole. The bowline's primary function is to tie a fixed loop at the end of a rope. For this reason it is a very popular rescue knot, with the fixed loop tied around the waist or under the arms of a survivor being lifted to safety. With the rope in the left hand, a right facing loop should be formed with the long end of the rope on the underside of the loop. To tie, the shorter end of the rope (the rabbit) should run up through this loop (the hole), around the long end (the tree) and back down into the loop (the hole). Using much smaller cord, the bowline can also be used to create a snare noose. After the bowline is tied, the long end of the snare line can be fed through the fixed loop to create a noose. Watch video tutorial #8 for complete instructions at: www.creekstewart.com/365-book-videos

SKILL# 28
Make a Locking Lark's Head Snare Noose

A locking non-wire snare noose can be made using a simple trick called the butterfly loop. Starting by tying a fixed loop using the bowline knot at the end of your snare line that is about the size of a dime. Then fold that loop over on itself to make two smaller loops like shown in the photo. Finally, run the other end of the snare through one loop under the middle and out the other loop. This creates a lark's head knot around the snare line and prevents it from loosening once tightened.

*Expert Tip: The addition of a little pine sap at the lark's head loops will help them stay in place while setting the snare.

Close-up of lark's head knot.

Lark’s head snare noose.

SKILL# 29
Survival Trapping: The Flip Cup Snare

This cool little trap uses the bottom of a plastic bottle (in the primitive plan for the trap, it was half a coconut shell) and two flexible twigs to launch a noose around a bird's neck. It's a very inventive design that is triggered by a bird's natural pecking behavior. Start by cutting off the bottom 2 inches of a normal plastic water bottle – anything up to about 4 inches in diameter will work. Bury this so that it's flush with the ground. Next bend two flexible twigs (bamboo slivers work great) in an X pattern so they make a crossed arch over the opening of the bottle. Finally, lay an open noose (tied using the bowline) over the flexed twigs around the rim of the bottle and place bait (typically seeds) in the bottom of the bottle. When a bird pecks for the seeds it disturbs the bent twigs, which cast the noose upward around the bird's neck. The bird will jump when the twigs release, and this action will clinch the noose tight.

Flip cup snare in action.

SKILL# 30
How to Make a Fire with a Light Bulb

The bulbous circular shape of most incandescent light bulbs happens to make a very powerful lens to focus sun rays when filled with water. With the light bulb wrapped and held in a T-shirt or rag for protection, firmly tap the bottom electrical contact to break loose the interior glass mount that holds the filament. After broken loose, carefully remove it from the bulb. The interior of most light bulbs is coated with crushed glass and can be easily rinsed out with water. After doing so, fill it with clear water and use to focus the sun's rays on your fire tinder.

SKILL# 31
Five Solar Fire Tinders

Solar fire tinders are unique from many other types of fire tinder because they must have the ability to take and hold an ember – generated from focused sun rays – long enough to be placed into a tinder bundle and blown into flame. My favorite five are:

1. Punky Wood: Dry, semi-rotted wood that can be powdered between the finger tips.
2. Rabbit/Deer/Moose Poo: Dry, crushed plant matter happens to be an incredible solar ember tinder.
3. Milk Weed Ovum: The tissue-paper-esque membrane inside of the milkweed pod on which the seeds are attached.
4. Tinder Fungus: Found only on white birch trees, the spongy caramel colored interior of this fungus will take a solar ember in mere seconds.
5. Sage: Dried sage leaves will smolder once lit until the fuel supply is exhausted.

SKILL# 32
How to Identify Chaga Tinder Fungus (Inonotus obliquus)

Chaga is a fungus that grows exclusively on the white birch of the Northwoods. I've found that the best natural fire starting resources grow where fire is needed the most for survival. The porous interior is one of the few natural tinders that will smolder with a spark from flint and steel. It is also one of the best natural solar tinders that can be found. It can be easily identified growing on the exterior white papery bark of the birch tree. It is black and crusty, resembling a large chunk of malformed charcoal. Oftentimes it will need to sawed or chopped off with an axe. The interior is where the best fire starting material resides.

Tinder fungus growing on a white birch tree.

SKILL# 33
How to Purify Water with Household Bleach

Many municipal water facilities use sodium hypochlorite as a water-purifying agent. Household bleach is a solution that contains anywhere from 5.25 to 8.25 percent sodium hypochlorite. Under the right conditions, this can be used to purify questionable water. The United States Environmental Protection Agency recommends a ratio of 2 drops per 1 liter of water. This can easily be remembered by referencing the legal drinking age of 21 – 2 drops per 1 liter. The water cannot be cloudy and it must sit for 30 minutes after mixing.

SKILL# 34
Stranded Car Survival: Spare Tire to the Rescue

A burning tire may not be good for the environment, but it sure is good for survival signaling. Just one burning tire will produce a plume of thick black smoke that any rescue crew would be sure to see in daytime hours. Before tossing the spare tire on the fire, first be sure to let the air out of it by depressing the check valve on the air valve stem. Not doing so could cause the tire to explode or send a sudden burst of air and potentially flaming rubber in your direction.

SKILL# 35
How to Render Tallow (Animal Fat)

Tallow is simply animal fat that has been melted down to remove all impurities, including pieces of meat, skin and hair. Start by cutting the solid white fat pieces into small ½-inch squares or similar size. Place these in a metal pot and over a fire that is just hot enough to melt the fat. The fat will melt and the impurities will float to the top. After all of the fat has melted, the impurities can be strained off and the remaining rendered tallow can be stored in a container away from heat and direct sunlight for many months. Use as needed.

SKILL# 36
Uses for Rendered Tallow

Rendered animal fat has a plethora of survival uses. A few of the most noteworthy are as a leather treatment and waterproofing, metal protectant, wood dressing, lubricant for machinery or tools, and candle making. It can also be used as a base for natural salves and ointments, and even without other ingredients makes a suitable cream for chapped lips and hands.

SKILL# 37
How to Make a Fat Lamp

Rendered animal tallow makes an excellent fuel for an improvised fat lamp. All that is needed is a heat-resistant container, a fibrous wick and some rendered tallow. Start by heating the tallow so that it can be poured into the container. A freshwater mussel shell discarded by a raccoon works very well. These can often be found near small creeks. Place the wick in the container so that it ramps up and out of the melted fat. If the container doesn't have a natural ramp, the wick can be held in place between two small stones. Some suitable wick options are a twisted strand of fluffy cattail seeds, a slice of cotton T-shirt or jean material, twisted shreds of cedar bark, and plant fibers such as those from milkweed, dogbane or jute.

SKILL# 38
How to Make Pemmican

Pemmican is a 50 percent to 50 percent mixture of shredded, dried red meat and rendered tallow from grass-fed large game animals such as sheep, beef, deer, elk or bison. It was used by primitive people in North America as a complete nutritional food source for months at a time with no additional dietary supplements. It requires no refrigeration and can last for months when protected from heat and direct sunlight. One pound of 50/50 pemmican has approximately 3,000 calories. Making it is very simple. Heat rendered tallow and mix in an equal amount of shredded, pulverized, powdered, dried red meat. Add nothing else. The meat should soak up all of the melted fat. Pack this into containers or hides and consume as needed.

SKILL# 39
Fire from Ice

Ice, when shaped into a sphere larger than a golf ball, can be used to focus the sun's rays and generate a solar ember. The ice can be chopped from any clear water source and much caution must be given to select a piece void of bubbles, cracks or deformities that may interfere with the unobstructed passing of the sun's rays through. It is easiest to use a folding saw to form a rough circular shape and then the end of a circular metal pipe or metal water bottle to transform it into a perfect sphere. A "glassing" of the final product with warm hands will make the surface very smooth and transparent. Finally, use it to focus the sun's rays just like any other solar fire starter.

SKILL# 40
Bramble/Thorn Fishing Hook

If carefully selected, a section of rosebush or bramble stalk can make a suitable fishing hook. The key is to choose a hook as shown that has an “upper thorn” that can be used as a stopper for attaching the line. Sometimes, the most difficult part of primitive fishing can be securing the hook to the line, and a stopper thorn really helps with this. See Skill No. 314 for a great method of securing the line. This style of hook won’t hold fish long so it is best used “drop-in style” with a cane pole or sapling to quickly yank bluegill and sunfish onto shore.

Thorn fishing hook.

SKILL# 41
Survival Shelters: The One Tree Shelter

Primitive shelters are labor and time intensive. Not every situation allows for the time, labor and energy necessary to build one. One of the fastest primitive shelters to build is a shelter made from one evergreen tree. Carefully select a tree that is full of plentiful, bushy limbs, not sparse and scant. If properly chosen, the entire shelter can be constructed with less than 10 uses of a bow saw. Start by felling the tree at shoulder height or lower. Make sure to leave enough of a hinge so that the tree does not sever from the trunk during the fall. The fallen tree will form the roof and walls of the shelter. Trim the branches on the underside to create an interior space and use them as flooring or bedding. A shelter of this style will shed water, provide wind protection and can be built in under 30 minutes.

Shelter made from one tree.

SKILL# 42
Black Locust Fish/Frog Gig

The thorns on the black locust tree can reach lengths as long as 12 inches and are sharper than any man-made spear I've ever seen. The end of a 6- to 8-foot willow pole can be hollowed out with a knife or awl, and the butt ends of two or three locust thorns can be glued into place with pine pitch glue to make an absolutely deadly fish or frog gig. Keep in mind that this style of gig is a follow-through spear and hold gig because it lacks barbed thorns to hold the quarry. One must spear the quarry and push it to the bank or creek bottom and retrieve it by hand.

Frog gig made from black locust thorns.

SKILL# 43
The Fire Starting Power of Balsam Fir Sap

Understanding the fire starting value of balsam fir sap is a skill everyone should know. This extremely flammable sap is found year-round in blisters just beneath the bark. Pierce the blisters to collect the sap and smear it on fire tinder, feather sticks and kindling. Expose this sap to an open flame such as a match and it will ignite with fervor.

Popping balsam fir sap blisters.

SKILL# 44
Piggyback Bottle Crude Filter

Crude filtering of wild water to remove silt, mud and debris before chemical purification, boiling or final filtering is sometimes a very important step in the water treatment process. This is easier said than done with most makeshift crude water filters. An effective method for this is to construct a Piggyback Water Filter. This is accomplished by heating the tops of two plastic water bottle caps until they are gooey. Once gooey and hot, press them together to form a permanent weld. Use a knife to drill a hole through the middle. Cut the bottom off of one of the bottles and stuff it with a clean rag or bandana. Screw the bottles back onto their caps and scoop water from the wild source. The water will pass through the rag, filtering out the debris, and trickle into the bottle below where it can be further filtered or purified.

Two trash bottles fused together to form a crude filter system.

SKILL# 45
Survival Cooking: The Y-stick Pot Holder

A flexible Y-stick branch with a fork below can be quickly converted into a suitable pot holder without cordage. Trim the lower branch to hold a pot and twist the flexible Y branches around each other to form a secure loop that can be threaded over a fire roasting spit. Beech branches work excellent for this trick.

A pot holder with flexible Y branches twisted together to form a hanging loop.

SKILL# 46
Beech Branch Lashings

The beech tree is easily identifiable during the winter months due to its smooth silver bark and crinkly, light tan leaves that it keeps until the new spring leaf buds push them off. The branches of the beech tree are very long, spindly and flexible – even in cold temperatures. Most importantly, however, they are long and low growing, even on very large mature trees. It is a very unique growth feature of the beech. Two carefully chosen branches can be trimmed so that forks at the base end of each end of the branch can link while being pulled in opposite directions. The long, flexible branch tips can then be twisted and intertwined with each other to create a surprisingly strong bundle lashing.

Lashing formed from hooking two beech branches and twisting them together.

SKILL# 47
Beech Tree Sooty Mold Solar Fire Starter

During summer months, the beech blight aphid feeds on the sap of the beech tree and excretes a substance called honeydew (basically aphid poop) onto the leaves and branches below. This allows the growth of a fungus called black sooty mold, which forms golf ball size masses that resemble black spongy crusty charcoal. When dead and dried, these masses of black sooty mold will hold and grow a smoldering ember. Due to the dark color, they are great vehicles for a solar ember using a magnifying lens. Dark colors absorb more heat than light colors and a solar ember can be developed on black sooty mold in just a few seconds of full sun. This ember can then be placed in a tinder bundle and blown into a flame.

Beech tree sooty mold.

SKILL# 48
Survival Shelters: Tree Root Shelter

Some of my most effective and easy-to-construct survival shelters have been against the root wall of a large fallen tree. This natural wall made from earth and roots makes an incredible wind block and fire reflector. Start the shelter by filling the root cavity in front of the wall with leaves or pine needles. Place sturdy limbs or cut trees across the insulated cavity to form a bed platform and, in essence, a raised bed up off the ground. A large fire one step in front of the bed platform will drive heat off of the root wall down onto the sleeping platform. A roof is only necessary if rain or heavy snow is expected.

A perfect fallen tree for a tree root shelter.

SKILL# 49
Build an All-Night Fire

Feeding a large fire can feel like a full-time job and leaves little time for restful sleep in extremely cold conditions. A fire that will burn four to eight hours can be made with two 16-inch or larger diameter dry logs that are as long as your body. Shave one side of each log flat with an axe. Turn one of the logs upside down and rest its flat side against the flat side of the other log with 2-inch green spacer branches in between them. Fill this 2-inch void with twigs, flammable bark and wood shavings for the entire length of the logs and ignite. A long, smoldering fire will form sandwiched between the two logs, which will burn for several hours before the logs are consumed. The larger the logs the longer the fire will burn.

Two large pine logs used for all-night fire lay in front of a four-person raised bed.

SKILL# 50
Build a Nine-Hour Self-Feeding Trough Fire

Start by digging a trough in the ground one full step in front of your sleeping area that is 6 inches deep by 6 inches wide by the length of your sleeping area. Pile the dirt up on the side of the trough opposite your sleeping area. Start a fire in the trough and burn it until there is a nice bed of coals the enter length of the trough. Next, cut nine 6-inch diameter dry hardwood logs that are the length of the trough. Also cut two 2-inch diameter green poles that are 5 feet long. Brace the poles using sturdy Y sticks leaning away from the sleeping area at a 60-degree angle. The base of these poles should be at the outer edge of the trough opposite of the sleeping area. Finally, stack the nine logs up against the two pole supports with the bottom one sitting directly on the hot coal-filled trough. Gravity will feed the logs into the fire as they burn. Each log will burn for approximately 30 minutes to one hour.

Front view.

Back view.

SKILL# 51
Survival Medicine: Willow Bark Pain Reliever

The bark of some willows, including white willow, black willow, crack willow and weeping willow, contain salicin – a chemical compound very similar to acetylsalicylic acid (aspirin). Chewing on a few thin strips of bark or willow twigs releases the compound and can help to relieve pain and reduce inflammation. People who have allergies to salicylates and pregnant women should not treat with willow.

SKILL# 52
Don't Drink Alcohol in Cold Weather Survival Situations

Alcohol is a vasodilator. This means that it opens up capillaries, causing more blood to flow to the surface of the skin. This effect is why many say that alcohol can help you feel warm in cold weather. However, alcohol contradicts the body's natural reaction to cold weather, which is to limit blood flow to the skin and extremities to keep the core warm. The more blood that flows close to the skin, the harder it will be to stay warm. If given the option to drink or not to drink alcohol in a cold weather survival scenario, ALWAYS turn it down.

SKILL# 53
Survival Plants: Milkweed

Milkweed is easily recognizable by its very uniquely shaped pods filled with hundreds of fluffy white seeds in the late summer, fall and into winter. If in doubt, a further confirmation is its sticky white sap. Although not considered by most a wild edible, milkweed has many other noteworthy survival functions. First, the strong fibers that run along the milkweed stalk were a popular source of cordage for primitive cultures. They were used to make rope and twine for clothing, lashings and traps. The fluffy seed “silk” has insulation properties that rival down feathers. During WWII, milkweed silk was used to make life jackets for the military. Lastly, the ovum and silk also make excellent fire tinders.

Milkweed in summer with pods.

SKILL# 54
How to Process Cordage from the Milkweed Plant

Plant fiber cordage from milkweed is best harvested in the fall after the plant has died and dried up. To extract and process the cordage from the stalk, start by cracking it from the side with a rock on the ground. It will almost always split into four sections. Split these sections along the entire length of the stalk. Starting at one end of one of the sections, snap and break away 2-inch sections of the hard interior stalk wall and pull up and away from the fibers that run along the exterior. Continue this for the entire length of the stalk. Once all of the fibers are peeled away, “bush” them between the palms of your hands to remove the remaining dead and dry plant matter.

Snapping away the inner wall to peel out milkweed fibers.

SKILL# 55
How to Reverse Wrap Cordage

Reverse wrapping cordage is the process of twisting and counter twisting plant fibers or nearly any thin flexible fibrous material into a multiply twisted cord. In fact, the ancient Incan Empire used this method to turn local grasses into rope suspension bridges that spanned canyons over 100 feet wide. Fibers that can be successfully reverse wrapped into useful cordage include, but are not limited to: milkweed plant fibers, grasses, bark fibers, plastic bags and even toilet paper! Learn this skill by watching the video here: willowhavenoutdoor.com/reverse-wrap-video

SKILL# 56
Raffia Palm Fibers to Practice the Reverse Wrap

Long strands of natural fiber cordage from the raffia palm are sold in craft stores such as Hobby Lobby and Michaels. They are used to decorate flower bouquets and other home decor projects. This natural fiber cordage is perfect for practicing the reverse wrap at home until you master the skill!

SKILL# 57
Make an Insulating Grass Hat

A simple grass canoe hat can be made to insulate and protect the head in cold weather. This style of hat can be very effective in reducing heat loss through the head, and also does a great job shedding rain and snow. Start by gathering six to 10 large handfuls of dead and dried grasses that are at least 18 to 20 inches in length. This should be bladed grass and not woody, stalked grass. Overlap and mix the grasses so that they form a column that is at least 24 inches long. Alternate the tops and bottoms when mixing. The process of overlapping and mixing the grasses should help to bind them together in one large mass of grass. Next, tie a small piece of cord approximately 3 inches from each end. Finally, pull apart a cavity in the center that resembles a canoe and pull the mass onto your head like a hat.

Creek wearing a fashion-forward grass hat.

SKILL# 58
Survival Knots: Clove Hitch

In survival, a clove hitch has many functions. One of the most popular is that of starting and ending several lashings, including the tripod, square and sheer lashings. It is also the hitch knot used to secure a horse to a hitching post. It is similar to the constrictor knot shown earlier, except not as secure. The working end of the rope is crossed over the object and then back over itself to form an X. It continues one more wrap and runs under the middle of the X to complete the hitch. Watch video tutorial #9 for complete instructions at: www.creekstewart.com/365-book-videos

SKILL# 59
Survival Knots: Tripod Lashing

Tripods have an infinite number of survival functions. From jerky drying racks (shown later) to cooking sets, the tripod lashing is one of the most utilized and functional wilderness lashings. With three sticks laying parallel to one another, tie a clove hitch on one of the outside sticks about 4 to 6 inches down from the top. Wrap the rope around all three sticks, binding them together, three times. This is called “wrapping.” After the third wrap, bring the rope between the first and middle stick and wrap it twice around the rope between them. This is called “frapping.” Now, frap the rope twice between the middle and third stick. Finally, finish with a clove hitch on the third stick. To set up the tripod, cross the two outside poles so that the intersection is underneath the center pole. This forces the poles to help bear the load of the tripod and reduce stress on the rope lashing. Watch video tutorial #10 for complete instructions at: www.creekstewart.com/365-book-videos

SKILL# 60
Survival Shelters: The Tripod Shelter Frame

The tripod lashing can be used with two equally sized sticks and one long center ridgepole to create a shelter frame that can be roofed with natural materials or a waterproof tarp canopy. Be sure the center ridgepole rests on top of the crossed, equally sized limbs. When laying out the poles on the ground to begin the tripod lashing, line the tops of them up and start the lashing 10 inches down from the top to provide a nice wide anchor fork.

Canopy shelter using a Tripod Shelter Frame.

SKILL# 61
The Keyhole Cooking Pit

A survival fire built to provide warmth and light is typically not conducive to survival cooking. The keyhole fire pit is the solution to have both a large warming campfire and also an area for cooking with the steady heat that only comes from hot coals. The perimeter of the keyhole fire lay resembles that of a key, with a large area for a typical campfire, and a dedicated smaller area where coals can be gathered for cooking. Oftentimes, the keyhole shape is dug into the ground or outlined by stones so that a pot, pan or roasting sticks can be easily rested above the coals for cooking. Fewer coals can keep a simmering heat while more coals can produce a boiling or searing heat. The keyhole fire lay gives a survivor the best of both worlds.

Overhead view of keyhole fire pit.

SKILL# 62
How to Actually Use an Emergency Blanket: Use #1 – Shelter Back Wall

Due to the very thin-walled construction, emergency blankets make horrible tarps. I learned this through trial and error. Don't attempt to use one as a stand-alone tarp because it will fail. It is better used as a back wall to a stick-built lean-to shelter. First, build a lean-to shelter frame with an approximately 1-foot square grid frame for the roof as shown. Then, cover that frame with the emergency blanket. The open grids allow the reflective surface of the blanket to show through. The blanket will also waterproof the roof. Finally, cover the blanket with forest duff and debris to hold it in place, being careful not to puncture the thin material. Using the blanket in this way will reflect heat from a fire built in front of the lean-to into the sleeping area, while also reducing the risk of damage to the blanket.

The addition of an emergency blanket between the stick framework and the leaf thatching of this shelter would make a huge difference in heat reflection.

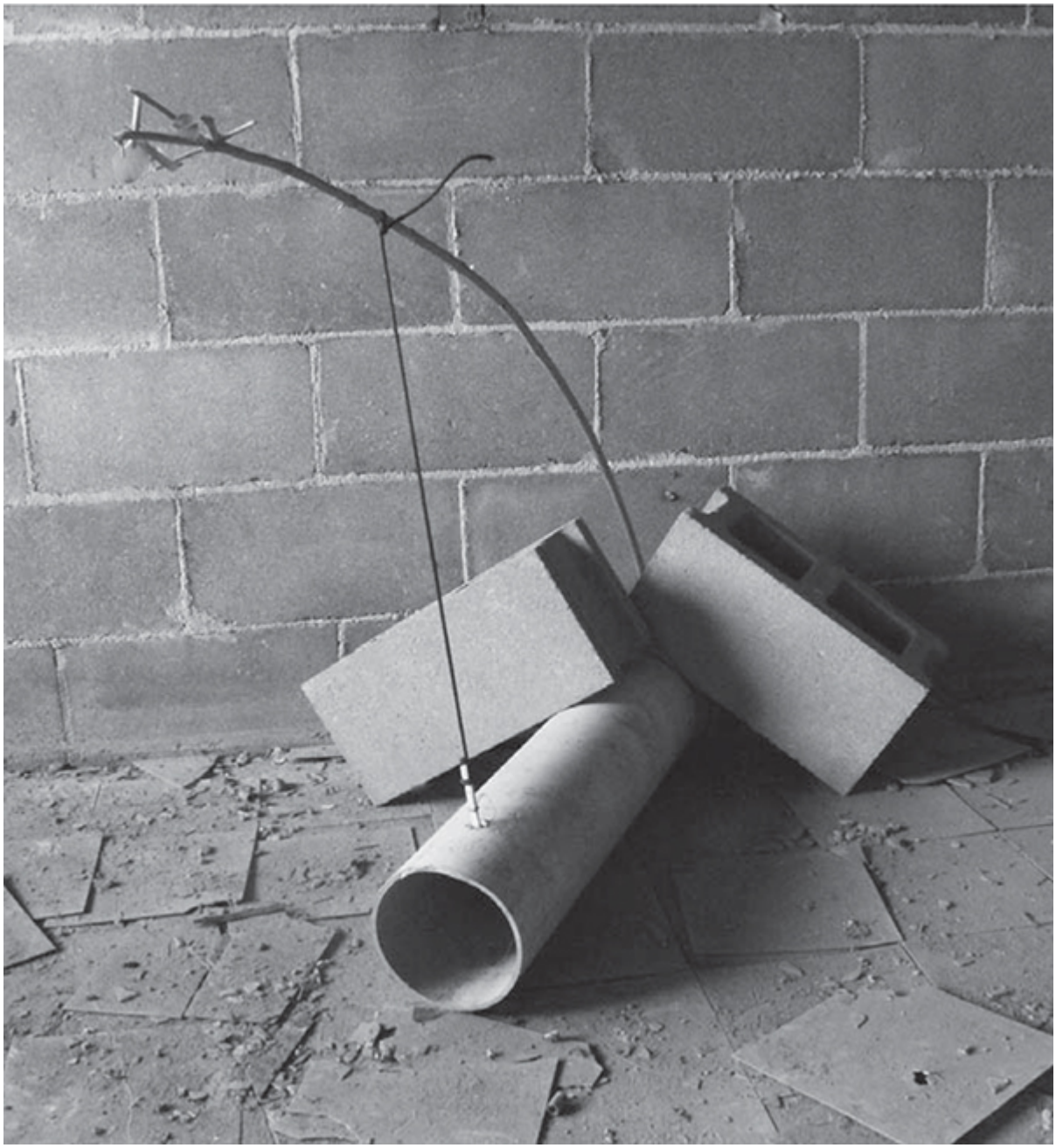
SKILL# 63
Wool Blanket Tumpline Pack

A good wool blanket is a multifunctional survival tool. One use not often considered is a tumpline pack. Roll your pack contents in the center of the blanket as shown, and secure a lashing from the top to bottom to keep the pack from unfurling. Then run a tumpline through the middle to allow you to comfortably carry the pack without the hassle of attaching additional shoulder straps. The tumpline aligns the weight of the pack with the spinal column, allowing the you to carry a surprisingly heavy load with minimal effort. The width of the tumpline piece over the top of the head should be at least 2½ inches wide for comfort.

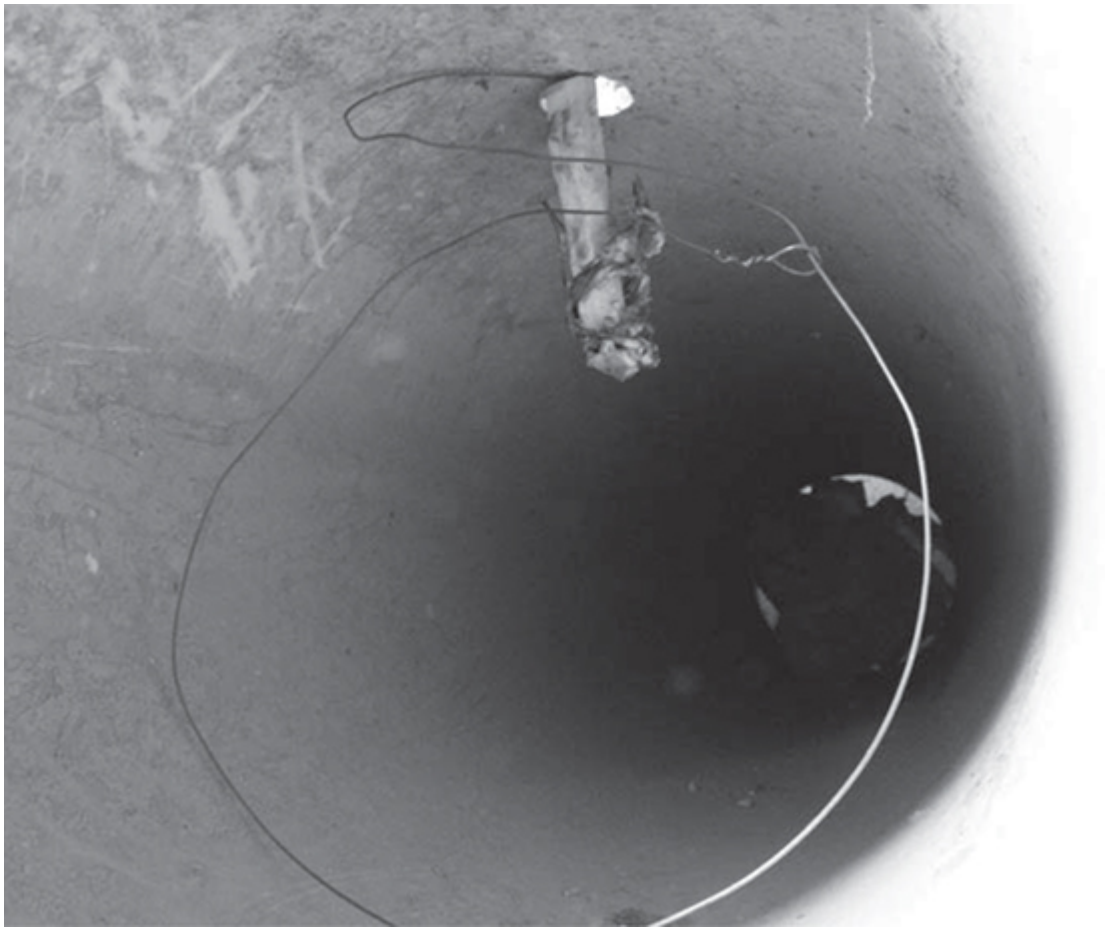
Creek using a wool blanket pack with tumpline.

SKILL# 64
Survival Traps: Urban Pipe Snare

This is the perfect snare for small urban game such as rats, chipmunks and squirrels. Start by making a pencil-size hole in the top of a salvaged piece of pipe about 6 inches from the opening. This hole is where the 4-inch long trigger stick will catch. Attach a wire noose to the trigger stick and feed it down through the hole into the pipe. A notch carved into the trigger stick allows it to catch on the forward lip of the hole. Set the noose several inches in front of the hole toward the opening of the pipe. Bait should be tied to the bottom of the trigger stick so that any disturbance releases the trigger and cinches the noose around the body of the animal, holding it until your return.



Front view of a pipe snare.



Inside view of the trigger.

SKILL# 65
Using Paracord Strands as Snare Nooses

The seven 35-pound-test inner strands of 550 parachute cord are often referenced as excellent snare wire substitutes in a survival scenario. In reality, they are very difficult to use as snare nooses because they are so limp. A good snare noose is rigid and holds its shape when set. The following are two ways to remedy this issue:

Method 1) Use split branch supports: Small twigs with vertical splits in the ends can be used to support the noose in an open position.

Method 2) Stiffen with melted wax or pine sap. After tying, the noose can be dipped in melted wax or pine sap then quickly positioned into shape before it hardens.

SKILL# 66
Twisted Stretch Cord from Plastic Shopping Bags

A friend of mine showed me this method of making cord at a recent training event and I thought it was so cool that I'm including it in this guide (thanks Steve!). Start by cutting one flat side from a plastic grocery bag and fold it the long way to about ½ inch wide. Next, twist this folded piece until just before it kinks and twists back on itself. Finally, while holding both ends, slowly and firmly pull each end in opposite directions. This will stretch the twisted plastic into an incredibly strong and thin cord that will not unwind.

SKILL# 67
How to Make a Bough Bed

A bough bed is simply a sleeping platform made from live evergreen branches that provides comfort, loft and insulation from the cold or wet ground. I typically begin all bough beds with two poles on each side to create a frame. Six stout stakes – two on one side and one on the other of each pole – hold these poles in place. Fist-size bunches of green boughs approximately 24 to 36 inches in length should be placed, natural arch up, in a V-shaped overlapping herringbone pattern from one end to the other of your pole frame. The stiff ends should extend beyond the poles on each side. Extra boughs can be placed at the hips, shoulders and head areas for more comfort.

Bough bed made using pine boughs with post bed frame.

SKILL# 68
Carving Notches: The Square Notch

The square notch has a variety of functions in shelter construction and camp craft. It's often used in log cabin-style shelters and fire lays to prevent logs from rolling. It also serves a purpose in several primitive-style traps. It is easily carved by making two cuts with a saw and chipping out the interior space by placing a knife in the saw cut and twisting the blade inward and upward. All angles of the square notch should be 90 degrees.

The square notch.

SKILL# 69
Survival Knots: Lark's Head Knot

The lark's head knot is a great way of attaching a rope to an object, especially when attaching to the middle of a rope or fixed loop. It's a great knot for attaching a lanyard to a knife or cell phone, and a pendant on a necklace. It can also be used to attach netting lines when making an improvised net.

Lark's head knot.

SKILL# 70
The Wishbone Survival Pack

A very suitable survival pack can be fashioned from an upside-down Y branch, some cordage and a jacket, blanket or scrap piece of material. First, cut a Y branch with the forks being approximately the same length as from your armpit to fingertip, and at least ½ inch in diameter. A square notch carved at the outside tip of each Y branch provides the perfect groove to wrap cordage between the two limbs that serves as a very comfortable lower back rest for the pack. Pack items can be wrapped in a jacket or blanket and lashed to the upside-down Y frame. To secure the pack, a 10- to 12-foot piece of rope can be tied at the Y using a lark's head knot, then wrapped over the shoulders and around the backrest and tied at your waist.

The author shows the frame of a wishbone pack before the material that forms the container is lashed into place.

SKILL# 71
Make a Roycroft Pack

Canadian survival instructor Tom Roycroft was tasked by the Canadian Department of National Defense to come up with improvised backpack ideas that soldiers could construct with limited resources in the field. He ultimately invented what is known as the Roycroft pack. Lash a simple triangle of limbs together as shown. The left and right sides are around the same length as your armpit to your fingertip. The bottom is the same length as your elbow to fingertip. Lay any kind of fabric, sheeting or jacket on top of the frame and place your supplies in the middle. Fold the remaining fabric inward; a crisscross lashing holds everything in place. Finally, tie a lark's head knot on top and run the two rope ends around the bottom corners and tie them at your waist. You can make this pack in just a few minutes with hardly any resources.

Finished Roycroft pack.

SKILL# 72
Start a Fire with a Busted Lighter

Even a broken or empty disposable lighter can be an incredible fire-starting resource if you know how to use it. A disposable lighter is essentially composed of three parts – a fuel tank, an abrasive metal striking wheel and a small ferrocerium rod. The striking wheel abrades the ferro rod to create sparks that ignite the fuel. In the absence of fuel, the abrasive wheel and ferro rod can still be used to make a fire. If the striking wheel on a lighter is turned steadily against the ferro rod without sparking, a small pile of micro metal rod dust can be abraded from the ferro rod. If it's held in an upside-down position over a napkin or other flammable tinder, one can collect a small pile of this dust after several minutes of steady abrading. Then a spark from the lighter can ignite this pile of flammable dust, which will in turn ignite the flammable tinder underneath.

SKILL# 73
Survival Shelters: The Wiki-Up

The Wiki-Up is basically a stick-made tipi. It all starts with three to four equally long poles with branches or forks at the top that can be interlocked to form a traditional tipi shape. Once this framework is erected, additional long poles can be laid against it around the perimeter to form the walls. The addition of green boughs, grasses, leaves, bark slabs and moss on the outside can help to shed rain or snow, block wind and insulate the shelter. It's not uncommon for a small fire to be built inside a wiki for cooking and warmth. Special attention should be given to the lower third of the walls – extra insulation and coverage to protect from the elements is necessary.

SKILL# 74
Survival Knots: Whip Lashing

The whip lashing is used for a variety of needs in the field. It can prevent ropes from fraying, create a rope handle on a tool or help bind two poles together.

Step 1: Place a loop of cord lengthwise against the handle.

Step 2: Begin wrapping the excess cordage around the handle up toward the looped end. Be sure to leave a tag sticking out of the bottom of the lashing.

Step 3: When you reach the loop or run out of cordage, run the tail through the loop.

Step 4: Pull the tag end sticking out of the bottom. This will pull the loop around the tail and under the wrapping. Trim the ends.

Watch video tutorial #11 for complete instructions at: www.creekstewart.com/365-book-videos

SKILL# 75
Agave Stalk Fire Carry

Agave, also called the century plant, is native to America's Southwest deserts and to some areas in South America. It produces a rosette of large, sword-shape leaves that have a needle-like point. When the plant flowers, it grows a very tall and large center flower stalk before dying. The dead and dry flower stalk has a very hard, dense outer wall and a very soft pithy interior. A coal from the fire can be placed into the center pith of a section of flower stalk and carried for many miles like a smoldering torch. The dry inner pith will slowly smolder and is also an excellent material on which to achieve a solar ember. Once at the desired destination, a section of smoldering pith can be dug out and placed into a tinder bundle for flame.

SKILL# 76
Understanding Mechanisms of Heat Loss

There are two primary mechanisms of heat loss to be concerned about – conduction and convection. Conduction is when heat is lost from the body because it is in contact with something cold, such as the cold ground. Creating dead air space with a sleeping mat, raised bed, bough bed or masses of grass and leaves between you and the ground can help to prevent this. Convection is when heat is lost due to the movement of air or water across the skin. Convection can be reduced by finding or building windbreaks and wearing multiple layers of clothing. As a survivalist, understanding how the body loses heat can better prepare you for how to prevent it.

SKILL# 77
Creek's Bannock Fry Bread Recipe

Hot fry bread is one of my all-time favorite things to make in the wild. It can be prepared with the simplest of ingredients and would never be as satisfying at the kitchen table. Start by mixing the following dry ingredients: 1 cup all-purpose flour, 1 cup baking powder, 2 pinches of salt, 1 tablespoon of raisins. Pour in enough water, mixing gently, to create a firm dough. Shape the dough to fit your pan, making it no more than 1½ inches thick. Pat the dough top and bottom with flour to prevent from sticking and place in a heated, lightly greased pan on the coals on the fire. Brown each side of the bread and then place the pan at an angle near the heat of the fire to finish cooking. The entire process should take no longer than 20 minutes. Spreading jam and butter on a hot tear of fry bread is a nighttime treat that will not soon be forgotten.

SKILL# 78
Survival Shelter: Debris Hut

A debris hut is a cold-weather survival shelter designed to keep body heat inside and the elements outside. It is a shelter designed to be used in the absence of a fire. As can be seen in the photo series, the debris hut starts with a simple framework made by connecting three solid forked limbs. This framework should be just large enough to fit your body. Next, solid limbs are placed on the sides as rafters. Then, a latticework of branches should cover the framework. Finally, heaps of forest duff, leaves and debris should be piled on the outside – starting at the bottom and working up – to serve as insulation material for keeping body heat inside the shelter. Don't forget to pile dry leaves, grasses and duff inside to form a mattress that is at least 18 inches thick. After backing into the shelter, plug the opening with more leaves to create a door. Insulation material should be at least 24 inches thick throughout.

Debris hut framework using three forked sticks.

Strong sticks used for rafters.

Latticework of branches placed on rafters.

Leaves and forest debris piled inside and on top.

SPRING

SKILL# 79
Make a Fishing Gorge

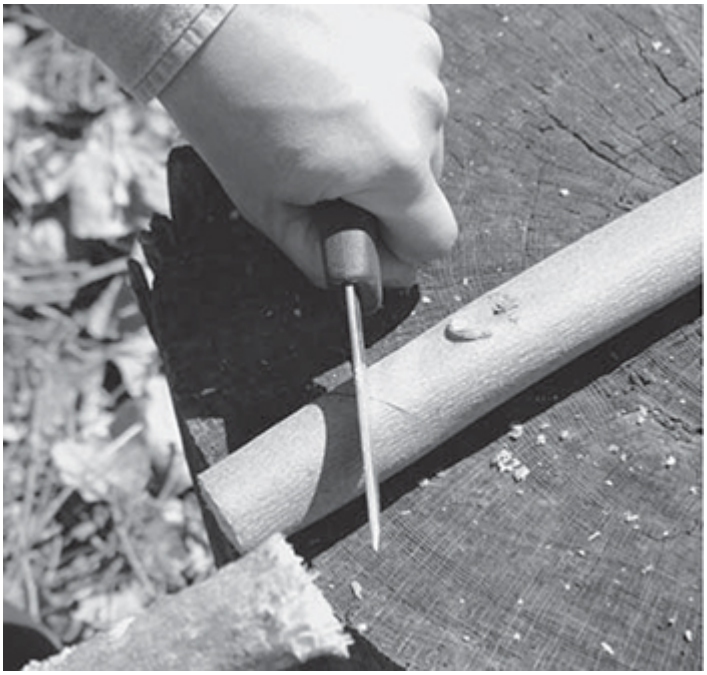
A fishing gorge is designed to “gorge” in a fish’s throat rather than hook it like a traditional fishing hook. These work best with fish whose natural instincts are to swallow bait such as carp, catfish and bass. A suitable gorge can be fashioned from a sliver of bone, wood or even metal. When the line is tied low on the gorge hook, it forces the hook to rotate and lodge in the fish’s throat when pulled taught. This makes it very difficult to work loose, even with large fish. Gorges should be baited parallel to the line so that when the line is pulled, the gorge rotates and wedges in place.

Small bone gorge with willow bark cordage for catching fish.

SKILL# 80
Carving Notches: The Pothanger Notch

Another name for the pothanger notch is the owl's bill notch because it resembles the short downward facing beak of an owl. This is the perfect notch for quickly making an adjustable pothanger stick that can be used for cooking or boiling over a fire. The notch is made by batoning an X halfway through the stick to be used. Short push cuts down into the middle of the X clears the excess wood and creates the beak, which can then be quickly shaped to securely hold a pot bail.

Batoning one leg of the X.



Batoning the second leg of the X.

Carving away excess wood.

Undercutting the pothanger notch.

SKILL# 81
Carve an Adjustable Pot Hanger

A very impressive adjustable pot hanger can be carved from a branched stick that is 1 to 2 inches in diameter. The forked branch turned upside down serves as the hook that fits over the roasting spit or tripod. A series of pothanger notches should then be carved a few inches apart along the length of the stick to create a series of adjustable hooks to hang a pot bail.

A pothanger notch in action.

SKILL# 82
Survival Plants: Chufa (Cyperus esculentus)

Chufa's edible prizes are its underground tubers, which can be the size of your thumb. You'll almost always find chufa growing along a freshwater shoreline, and the tubers are edible year-round. Chufa is readily identified by its spikey flower petals and unique triangular stalk. Harvest the tubers in sandy soil by simply pulling up the entire plant. A little more effort to find them will be required in muddy areas. They can be washed and eaten raw or roasted over a fire.

Chufa seed head.

SKILL# 83
Survival Trees: Shagbark Hickory

The shagbark hickory is a great survival resource found in the Eastern woodlands from Louisiana to Maine. Mature shagbarks are easily identified by their shaggy, scaly gray bark. The bark is very dense and burns long and hot. Strips of bark can easily be pulled from the tree and make great fire-building material. Shagbark hickory bark is often dry because it is off the ground and exposed to the wind. In the fall, this tree produces delicious edible hickory nuts. All forest animals feast on them when available. Squirrel pole snares (Skill No. 364) have a very high rate of success when set against the shagbark hickory. Hickory wood also makes excellent replacement handles for all woodsman tools including axes, mauls, shovels, adzes and bows (both the bow and arrow and bow drill).

Bark of a shagbark hickory tree.

SKILL# 84
How to Make an Adze

An adze is basically a primitive axe. Start by sourcing a branch that is approximately the size of the handle you want for the adze. A typical handle size is about 1½ inch in diameter. The branch will be the handle and the section of tree trunk (slightly larger in diameter than the branch) will be the blade shelf. Many different shapes and sizes of rocks or scrap metal will work for an adze, but a rectangular shape with one sharp end is best. If using rock, it is possible to find a blade that does not require shaping work, but most will require abrading or knapping to hone a cutting edge. Abraded and polished edges last much longer in my experience.

Once the branch and section of trunk are cut from the tree as shown, a shelf must be carved on the top of the trunk section for the blade to rest on. The back of the shelf that supports the blade while in use is a critical design element. The blade is then lashed on using the whip lashing or figure eight lashing shown in previous skills.

Improvised adze with a metal blade.

SKILL# 85
Make a Basswood Leaf Salad With Inner Bark Garnish

During springtime, some of my favorite wild edible greens are the young tender leaves from the basswood tree with a garnish of sweet inner bark shavings. Basswood leaves are some of the finest and mildest tasting of all wild greens. They are tender, slightly sweet and mucilaginous in texture. At the same time of year that the leaves are just popping out, the bark can also be easily peeled from the young basswood suckers that exist at the base of almost every mature basswood tree. The bark can be peeled off in strips and then the inner bark layers scraped off with a knife blade to produce a refreshing, shredded sweet edible garnish.

SKILL# 86
Mushrooms: To Eat or Not to Eat

Very little information will be included in this manual on the survival usage of mushrooms. This is because they are not worth your effort. Many mushrooms are deadly. Even experienced foragers can make fatal mistakes when it comes to edible mushrooms. They offer very little in terms of sustenance and are quite frankly not worth the risk. Food is a last survival priority and it is my opinion that one should never eat a mushroom in a survival scenario. I only have a few exceptions to this rule and they will be covered in later skill listings.

SKILL# 87
How to Make a Wire Snare Noose – Single Loop

Wire for snare nooses can be sourced from a variety of salvaged wires in cars, trucks, planes, electronics and anything that has an electrical cord. A simple noose can be formed by first making a loop at the end about the diameter of a pencil. The tail should then be twisted back upon itself for at least five full twists to prevent it from working loose. Finally, the other end of the wire should be passed through this loop to form the noose.

SKILL# 88
How to Make a Wire Snare Noose – Double Loop

A double loop wire noose will not loosen once it's drawn tight. If ample wire is available, it is recommended to make nooses in this fashion to prevent small game from escaping. The only difference between the double loop and single loop designs is that the wire is passed through the pencil-size loop two times (to form two noose loops) – instead of one.

Double loop wire noose.

SKILL# 89
The Fixed Frame Game Trail Snare

The fixed frame game trail snare is only to be used in-line with a well-established small-game trail. It consists of two stakes driven deep into the ground on each side of the trail with a crossbar lashed between them using the square lashing. The wire or cord noose is hung from the crossbar directly above the trail at the estimated head level of the quarry – approximately 3 inches off the ground for most small-game animals up to raccoon size.

A fixed frame trail snare set across a game trail.

SKILL# 90
Morel Mushroom (Morchella)

NEVER EAT A MUSHROOM UNLESS YOU ARE 100 PERCENT POSITIVE IT IS EDIBLE. Spring is the time for delicious Morel mushrooms. When the combination of sun, warmth and rain combine, morels pop up in woods all over the world. The defining feature of the morel is its honeycomb-like appearance. There are many theories about where they grow best, but I've found them in many different types of areas. They do, however, almost exclusively grow IN the woods as opposed to meadows and open areas. These wonderful natural delicacies can be cooked many ways, but are best fried or prepared in stews.

Morel mushroom growing in shaded woods.

SKILL# 91
Small-Game Distress Call

The time may arise when a small-game distress signal could come in handy. Perhaps when trying to attract or distract a larger predator. An easy “no-tool” small-game distress call can be made by making a series of loud, short kissing noises against the back of the hand. This makes a noise very similar to a rabbit in distress and predators will often take notice.

SKILL# 92
The Survival Virtues of Wool Clothing

Wool's natural function is to protect sheep from exposure in all types of weather conditions including rain, snow, extreme cold and heat. It is designed for survival – plain and simple. The top three survival virtues of wool clothing are as follows:

1. Insulation: The springy, coiled wool fibers bind together and trap dry air not only between themselves, but also against the skin. Wool wicks away perspiration and keeps the skin dry. This property allows wool to regulate temperature in both hot and cold environments.
2. Effective when wet: Wool can absorb almost half of its weight in water before feeling wet. Unlike cotton, strong wool fibers do not collapse under the weight of water and are still able to trap dead air space and maintain insulation properties. Wool also naturally sheds water, which helps to stay dry in the first place.
3. Durable: Wool is very tough. Its natural elasticity helps prevent tearing. It is also fire resistant and will not catch flame or melt like other fabrics.

SKILL# 93
Regulate Core Body Temperature Through the Neck

When it comes to maintaining body temperature in cold weather, few mention the important role of the neck area. Blood is the antifreeze of the body; all blood pumped to the head passes through the neck twice. Most of the main arteries and veins in the neck are very near to the skin where a great deal of heat is lost, which leads the blood to cool rapidly. Insulating your neck with a scarf can make a significant difference in helping to regulate your core body temperature in extremely cold weather.

SKILL# 94
Flat Rock Boiling Water

Boiling is the best primitive way to purify wild water. However, a container to boil water in isn't always available. A longer and more labor intensive, but equally effective, method of boiling is to place a flat rock into the coals of a hot fire and wait for it to get so hot that drops of water instantly come to a boil when sprinkled upon it. Water can be sprinkled on the rock and quickly mopped up using a T-shirt or bandana. After several moppings the purified water can be rung directly into your mouth. It will take you awhile to rehydrate using this technique, but it is a viable option when other preferred methods aren't readily available.

SKILL# 95
The Fire Pillow

When sleeping next to a fire on a cold night, it is very likely that a lack of heat will wake you before the sun does. Much of the night in a survival scenario is spent feeding the fire. In the unfortunate event that you wake up to a fire that has completely fizzled out, it's a good idea to have a fire pillow at the ready. A fire pillow is simply a large bundle of dry kindling wrapped up and used as a pillow that can be quickly used to relight a fire that has gone out. An armload of squaw wood lashed with a constrictor knot and covered with a folded towel or bandanna makes a very suitable wilderness fire pillow.

SKILL# 96
Gum Wrapper and Battery Fire Starter

The electrical energy stored in batteries of all shapes and sizes can be harnessed and used in a variety of improvised survival fire starting methods. One of the most unique is with a foil-backed gum wrapper that has been cut to form an hourglass shape. Touching the foil side of the wrapper simultaneously to the positive and negative terminals of a AA battery causes the battery to short circuit and the energy to concentrate into the thinnest area of the trimmed wrapper. This electrical current heats the conductive foil to a point that ignites the paper on the other side into a flame.

A gum wrapper bursts into flame after being used to short circuit a AA battery.

SKILL# 97
Know How to Find Squaw Wood

The dead, low hanging branches of evergreen trees is often referred to as squaw wood. In abundance, squaw wood may be all of the kindling one needs to start a fire. It is often representative of Fire Numbers 1-10 when building a fire using the Fire by Numbers method detailed in Skill #229. It is almost always protected from rain and snow by the branches above it in the tree, and its exposure to the wind makes it one of the driest kindling materials available.

Low hanging squaw branches on a black spruce tree.

SKILL# 98
Make a Stone Weir Fish Trap

Some of the oldest recorded, and still existing, fish traps were made by stacking stones that funneled fish into nets or a specific corral for spearing. Stones can be stacked on each side of a small creek or stream in a V shape to funnel fish into a net or basket placed at the point of the V. This can work passively over the course of several days, or fish can be driven to the trap from upstream by throwing stones in the water and walking downstream toward the stone weir.

Stone weir funnel with a net in the center.

SKILL# 99
How to Make an Improvised Gill Net

A gill net is a flat rectangular net placed into a waterway to catch fish as they pass through the area. Primitive gill nets were made from all kinds of natural fiber cordage and weighted at the bottom with stones. A gill net can be made from the interior strands of 550 paracord, or any fine net-like material. Start by stretching a line of paracord between two poles or trees that are the same distance apart (left to right) as the size of the gill net you wish to make. Next, tie strands of netting, in this case inner paracord strands, approximately 1 inch apart using a lark's head knot along the length of the paracord. Then, tie the net strands together in a diamond-shape pattern using simple overhand knots. Continue this process until the net is as tall as you wish and then tie the ends to a lower line stretched between the two poles or trees.

Net lines tied with lark’s head knots.

Connecting net lines with overhand knots to create a diamond pattern.

SKILL# 100
How to Make an Improvised Dip Net

A dip net is a net attached to a frame that's typically used to scoop fish or frogs from the edge of the water. Some have a handle and some are just a circular, square, oval or rectangular frame. To make a dip net in the wild, form a circular frame by twisting a green, flexible branch or vine into a circle shape and wrap it back upon itself several times. Then, similar to the gill net listed previously, lark's head knots are tied around the perimeter frame and the diamond netting pattern is tied between the cordage. The frame must be suspended in the air in order to tie the netting knots. Just tie three or four lines from the frame to a branch so that it hangs flat in the air in front of you. Once the net reaches the desired length, finish it by tying the bottom together in an overhand knot.

Circular dip net made from a flexible branch.

SKILL# 101
The Makeshift Bow Saw

A bow saw blade is much easier to pack than the entire bulky saw frame. They can be coiled up in a metal cup or pot and even tucked into a special pocket sewn on the back of a belt or pack strap. A frame for the blade can be quickly improvised in the field by bending a 3/4- to 1-inch diameter flexible sapling that is approximately 10 inches longer than your bow saw blade. Stubborn saplings can be bent without breaking by wrapping them around a large tree stump and pulling from the other side. The blade can then be inserted into 2-inch splits made in each end of the bent sapling. Round keyrings threaded through the holes in each end of the blade can be folded over the split ends of the sapling to hold the blade in place.

Bow saw made from a bent sapling.

SKILL# 102
Make a Wilderness Loom

The construction of a simple wilderness loom can allow the primitive manufacture of sleeping mats and shelter wall panels from a variety of grasses. The long lines attached to the handheld bar are called the warp lines. Each time the warp lines are lifted and lowered, called shedding, a new batch of grasses is placed between them. The process is very simple. The warp lines are lifted and a line of grass is placed between them, then the warp lines are lowered and a new line of grass is placed in again. With each shed, the grass is sandwiched between the warp lines, forming a woven mat. The beginning and end of the warp lines can simply be tied with a series of overhand knots to keep them from coming undone.

Example of a wilderness loom frame.

SKILL# 103
How to Actually Use an Emergency Blanket: Use #2 – The Bag Liner

While not ideal, an emergency blanket can get you through some seriously cold nights when used as a sleeping bag liner. Although condensation will build inside the bag and create some dampness on your clothing, it is a small price to pay for containing crucial body heat. But remember, you'll need a way to thoroughly dry damp clothing the next day.

SKILL# 104
Disinfect Water with Granular Calcium Hypochlorite (HTH)

Liquid bleach loses potency over time. In fact, a time period of six months will limit its efficacy for disinfecting water in an emergency. Granular Calcium Hypochlorite (HTH), however, will last up to three years if stored in a cool dry place. A small 1-pound container can treat thousands of gallons of water. For size, cost and shelf life, HTH is an excellent long-term, whole-house water purification option. Most HTH is 65 to 70 percent active calcium hypochlorite, so a diluted solution must be made in order to disinfect water. The U.S. Environmental Protection Agency suggests adding one heaping teaspoon of HTH to 2 gallons of water and stirring until it's dissolved. That solution can then be used to treat water in a ratio of one part solution to 100 parts water, or about 2 cups per 12½ gallons.

SKILL# 105
Make a Plastic Bottle Cordage Jig

A few choice cuts in a sapling stump and a sharp knife can turn plastic bottles found in the trash into many feet of strong, rot-resistant, moisture-resistant cordage. To see the full effect of this amazing skill, watch the skills video here: www.willowhavenoutdoor.com/two-liter-bottle-cordage

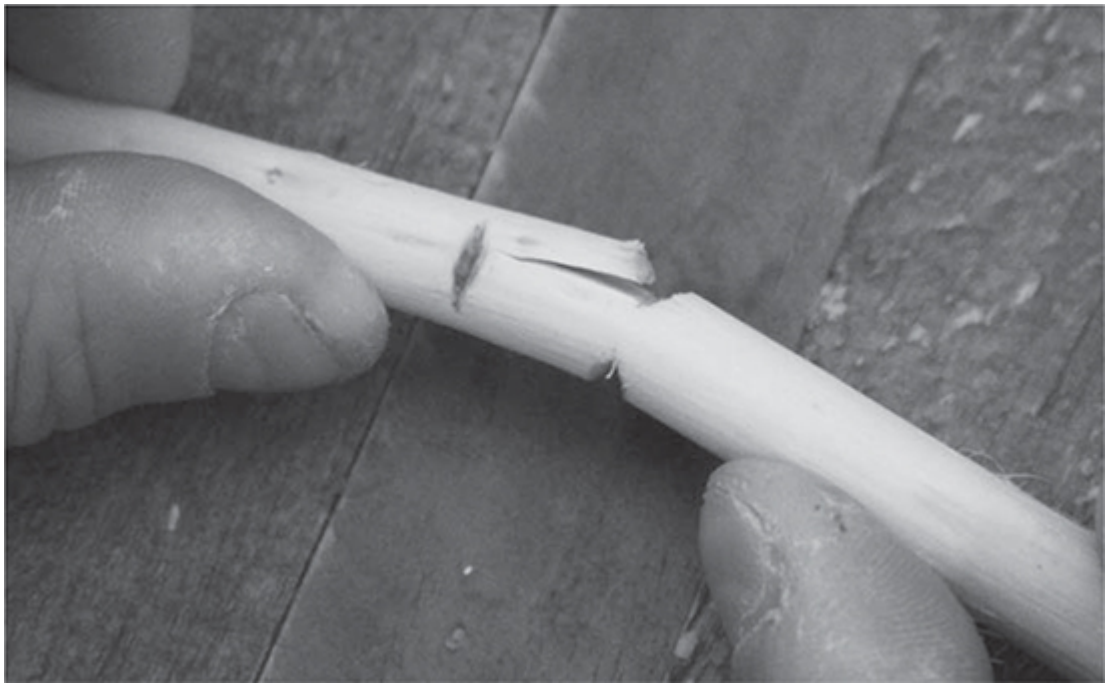
SKILL# 106
Wild Rose Arrow Shafts

The wild rose was a popular arrow shaft blank for many primitive cultures. Wild roses grow long, arching stalks that are both lightweight and durable when dried. Oftentimes, several usable shafts can be found on one plant. Simply trim off the sharp thorns and straighten.

SKILL# 107
How to Make an Arrow Notch for Mounting an Arrowhead

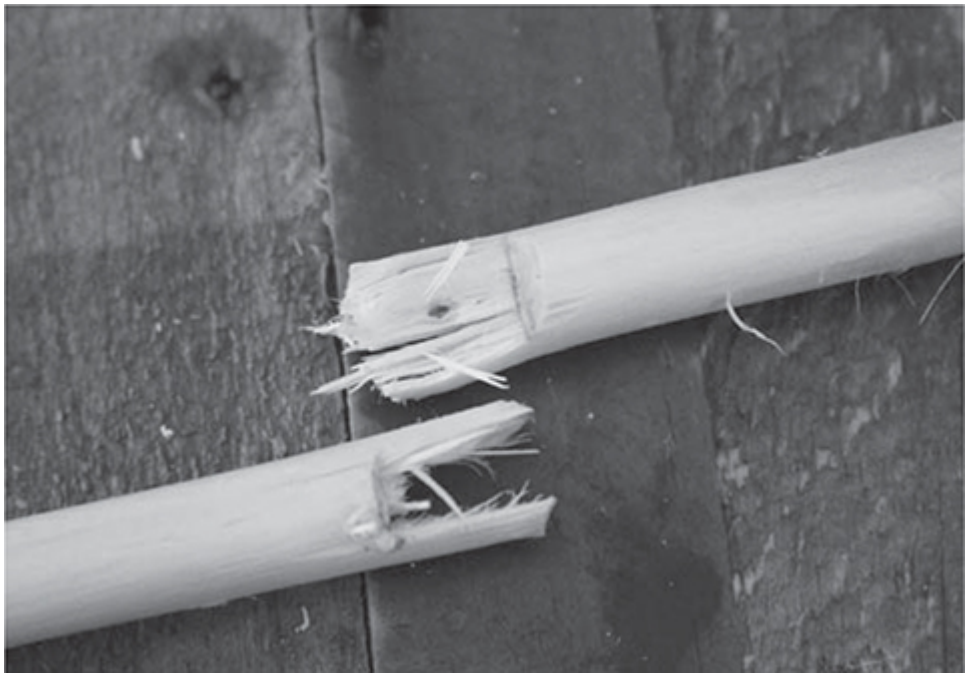
Arrow notches on both ends of a shaft should be made when the arrow shaft wood is still green, one for nocking the string and the other for mounting the arrowhead. There's a very simple trick to notching an arrow that only requires four simple cuts. First, make two large notches about 1/5 of the shaft deep each on opposite sides of the shaft. Next, make two small notches about ½ inch down and on the opposite sides from the first two notches. Using your thumbs, snap the arrow from the large notch to the small notch on both sides and break out the center as shown. NOTE: Arrowheads are mounted to arrow shafts using pine pitch glue. Lashing an arrow point to the shaft is only done to prevent the shaft from splitting.

Four notches carved in the arrow shaft.



Snapping from the larger top notch to the smaller bottom notch.

Breaking out the center piece after snapping at the notches.



Finished notch ready to trim up.

SKILL# 108
How to Attach Feather Fletchings to an Arrow – Two-Fletch Method

For your arrows to be accurate at any kind of distance, they will need some sort of fletching to stabilize their flight. Here's how to make it happen. First, a feather should be split down the middle. This is best done by separating the little feathers in the middle at the top and pulling in half. Once split, scrape the pith from the spine so that it is nice and flat. Trim each feather to be approximately 6 inches long and then remove the feathers from the spine on the top and bottom inch of each half. Begin just under the arrow string nock and use wet sinew to wrap the bare upper spine of each feather tightly against the shaft. This is best done by holding the feathers and sinew in place with each hand and rotating the arrow with the other end of the sinew clenched between your teeth. Finally, pull the feathers down taught and repeat the wrap with a new piece of sinew on the lower 1-inch section of bare spine. Once dry, the feathers can be trimmed with a sharp blade or burned to shape using the end of a burning hot stick. The feathers should be directly opposite each other and in a perpendicular plane to the string nock.

Top of split feathers lashed into place.

Both top and bottom lashed into place.

Feathers trimmed to size with a knife.

Wrapping the sinew around by rotating the arrow.

SKILL# 109
How to Straighten Primitive Arrows

Most records indicate that arrows were typically cut green, then straightened and and dried. The quickest method of straightening is to heat the area that needs to be straightened over the heat of a fire, rotating to heat the full circumference. Once heated, bend with your hands or thumbs on the convex side and hold it until cool. Work your way from one end to the other by sighting down the length of the arrow. Once straightened, wrap several arrows tightly together in a bundle to thoroughly dry before scraping off the bark and exterior imperfections. Once dry, scrape the exterior smooth.

SKILL# 110
Survival Plants: Chickweed (Stellaria media)

Chickweed is one of my favorite wild edible plants. It has a very mild taste – unlike many wild edibles and is best eaten raw. Chickweed produces little white flowers that have five petals. The petals are deeply lobed and can sometimes look like 10. A unique identifying feature of chickweed is its Mohawk – a very thin line of hair that runs down the length of the stalk. You'll find chickweed in disturbed areas that are primarily with a good amount of sunlight. The leaves are opposite facing and this plant can be found even during very cold times of the year.

The chickweed plant.

Notice the thin line of hair down the stem.

SKILL# 111
How to Survive a Grizzly Bear Attack

By far the majority of grizzly bear attacks are defensive in nature. Most situations result from a grizzly bear protecting its cubs or a food source. Some result from the bear simply feeling threatened by a surprise encounter. The intent of a defensive attack is to neutralize whatever the bear feels is a threat. The best course of action in this case is to play dead. Lay flat on the ground to protect your vital organs and protect the back of your neck with your hands. If you're wearing a backpack, leave it on to protect your back. Do not fight back or scream and let the bear believe it has neutralized the threat. When the bear leaves, count slowly to 100 before getting up to retreat. Many victims have provoked secondary attacks by retreating too soon.

SKILL# 112
The Traveling Hobo Oven

If stopping on your travels to roast or bake wild game or root vegetables isn't preferred, a viable traveling oven can be fashioned from hot coals and a metal can or bucket. Start by filling the bottom of the can with several inches of hot coals from the fire. Wrap the meal to be baked in either tinfoil or several layers of nonpoisonous leaves tied with strips of wire or green bark. Place this in the can on top of the hot coals and cover with another several inches of hot coals. A stick with a pot hanger notch makes the perfect handle because it will not conduct heat. Most average-size meals for one or two people take an hour to bake with this method.

SKILL# 113
Creek's Edible Root Rule

I have a rule based on a mistake that led to the worst night of vomiting in my life. This rule is about digging wild edible tubers, no matter what the plant is. **NEVER** eat a wild tuber that is not physically attached to the portion of the plant that you used to identify that tuber. Carefully dig all tubers while keeping the plant stalk intact. Other, similar tubers can grow close by and be easily mistaken for the intended meal.

SKILL# 114
How to Identify and Harvest Sinew

Sinew is the tendon that attaches muscle to bone and can be found in any mammal. When these tendons are separated into thin strings they make excellent sewing thread, bow strings, and binding and hafting material – especially for arrow points. Sinew is activated by moisture and glues itself together without the use of knots or additional adhesives. The sinew in the lower leg of a deer is the easiest to obtain. All deer legs are discarded during hunting season and are free for the asking. Simply slice the skin just below the back of the knee joint down to the hoof. Just under the surface you'll find the pure white tendon encased in a thin white membrane. This tendon is sinew. There are also long strips of sinew along the back, but the leg sinew is much easier to harvest.

SKILL# 115
How to Prepare and Use Sinew

After harvesting sinew it should be thoroughly dried in open air. Under normal conditions, this will take anywhere from 24 to 48 hours. Once dry, pound the sinew on a wooden surface with a round rock or wooden mallet. Don't use anything sharp because it will damage the fibers. Once the fibers start to loosen you can pull them apart into a bunch of little strands about the size of dental floss. They can be stored this way indefinitely as long as you keep them dry. To use, simply chew it in your mouth for about five seconds to moisten and apply as necessary. Small strands will dry hard and tight in just a few minutes. An outer coating of pine pitch will keep them waterproof. If sinew gets wet while in use it will loosen and come undone.

SKILL# 116
Cook with a Swedish Torch

The closest thing to a modern cooking range in the wilderness is an improvised Swedish torch. First, saw cut three logs that are at least 6 inches in diameter and 2 feet tall. Use a knife or axe to make cut and chip marks up one side of each log to help with lighting. Stand the three logs upright and face the cut areas inward toward each other. Fill the center space with dry tinder and small kindling pieces and light from the bottom. Once lit, this wilderness range will burn from the inside out like a rocket stove. The top platform makes a perfect spot to rest a pot or pan for cooking.

A three-log Swedish torch burning strong.

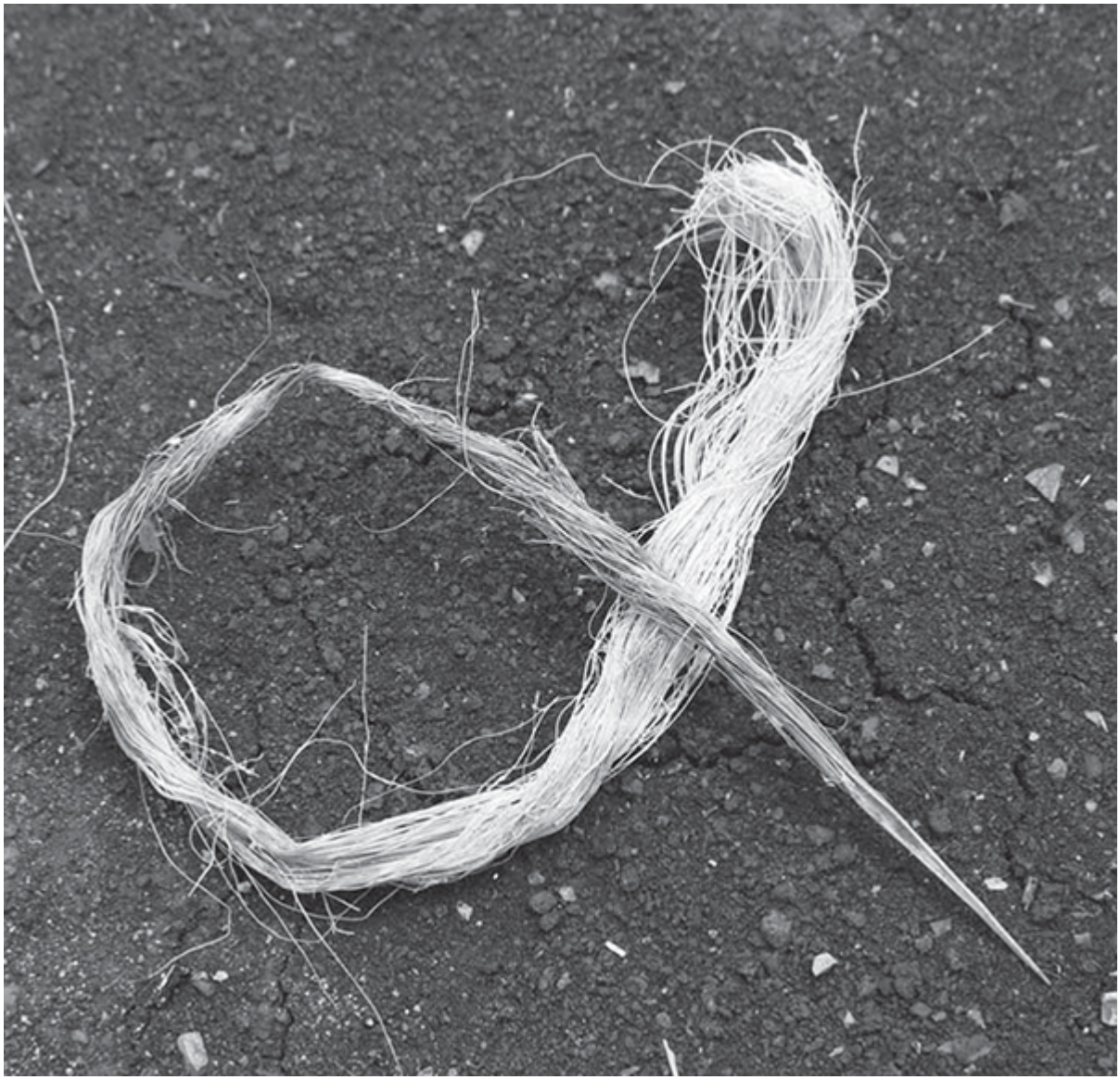
SKILL# 117
Survival Trapping: The Dinner Bell Bird Snare

An upside down Y branch hung from a trimmed branch fork makes the perfect bird perch when a stick is pushed into a split at the bottom of each Y fork. The addition of dangling bait, such as berries or a worm, and a floating noose completes the snare. The bird will land on the perch to eat the bait. When it flies away through the other side, the noose will tighten and hold the bird until your arrival. The noose should be approximately 3 to 4 inches in diameter. Clear monofilament fishing line works very well for this snare style. Watch video tutorial #12 for complete instructions at: www.creekstewart.com/365-book-videos

Dinner bell bird snare.

SKILL# 118
Agave Needle and Thread

Like Yucca, leaves of the desert growing Agave plant are an incredible source of natural cordage. Strong, thin fibers run the entire length of each sword-shape leaf. A very unique feature of the Agave is that all of the leaf fibers converge at the tip and form a very hard and strong needlepoint. After processing the leaf and removing unnecessary leaf material and skin, only the needle sharp point and long string of fibers remain. These can be used as a primitive needle and thread to fashion or repair durable goods such as clothing and baskets.



Agave leaf tip (needle) with leaf fibers (thread) ready to use for gear repair.

SKILL# 119
Survival Plants: The Spring Beauty

The spring beauty is not only cute – it's a delicious wild edible. These are one of the first flowers to pop up in early spring. Unlike many wild flowers that only grow in open meadows, the spring beauty blooms right in the woods. The spring beauty has five petals with noticeable pink-purplish veins. It usually has two leaves that grow opposite each other and very fragile, spindly stalks. The leaves are edible and make a great addition to any spring salad. The real treat, however, is the underground tuber that can range in size from a pea to a quarter. Once the thin sheath is rubbed off to reveal the pure white tuber, it can be eaten raw or boiled like a little potato. Be sure the stalk is still attached to the tuber so that you know for sure it's the spring beauty tuber. There's an old saying that white settlers knew they were approaching an Indian village in spring when they started to see the spring beauties disappear.

Spring beauty bloom and leaves.

SKILL# 120
Bake a Hobo Meal

Hobo meals are those wrapped in tinfoil and baked in the coals of a hot fire. Almost every wild-sourced meal that I can think of can be cooked this way while one tends to other camp chores. If tinfoil is not available, suitable replacements include nonpoisonous green leaves such as those from the maple tree, burdock, cattail and basswood. Several layers of wet newspaper or butcher paper will also work if they're available.

Quail being cooked in burdock leaves tied with basswood bark cordage.

SKILL# 121
Survival Plants: Red Clover (Trifolium pratense)

Red clover is extremely easy to positively identify, and has some great uses. A favorite of bumblebees, the dome-shaped pink to purple flower can be added to stews as a thickener at all stages of development, even dead and dried on the plant during winter. The green leaves are best boiled to soften them for easy digestion. Either part can be boiled to make a rather pleasant tea. The leaves almost always grow in groups of three and are green with a white pattern that resembles a thumbprint.

Red clover bloom and leaves.

SKILL# 122
Survival Trees: Mulberry

The mulberry tree is considered by many as an invasive scrub tree and much time, energy and money is spent to eradicate them from yards and fence lines. To a survivor, however, the mulberry is an incredible resource. First, it produces a bountiful crop of delicious blackberry-like berries each spring. These berries are edible raw and attract a variety of wildlife for snaring, trapping and hunting. A fruiting mulberry will attract birds, squirrels, ground hogs, raccoons and countless other edible critters. Other than food, the bark from young mulberry shoots can be easily stripped in early spring to make incredible natural cordage that will rival even the great basswood.

SKILL# 123
Survival Plants: Dandelion (Taraxacum)

There is a good reason why the dandelion is mentioned in every survival guide I've ever seen. It is entirely edible from bloom to root and I've never met anyone over the age of 5 who can't positively identify it. The leaves are edible year-round by preparing like spinach – steamed or boiled – but are much less bitter in the spring. The yellow blooms can be batter fried for a delicious treat. The roots can be cleaned and boiled like carrots, but they do have a slightly bitter aftertaste.

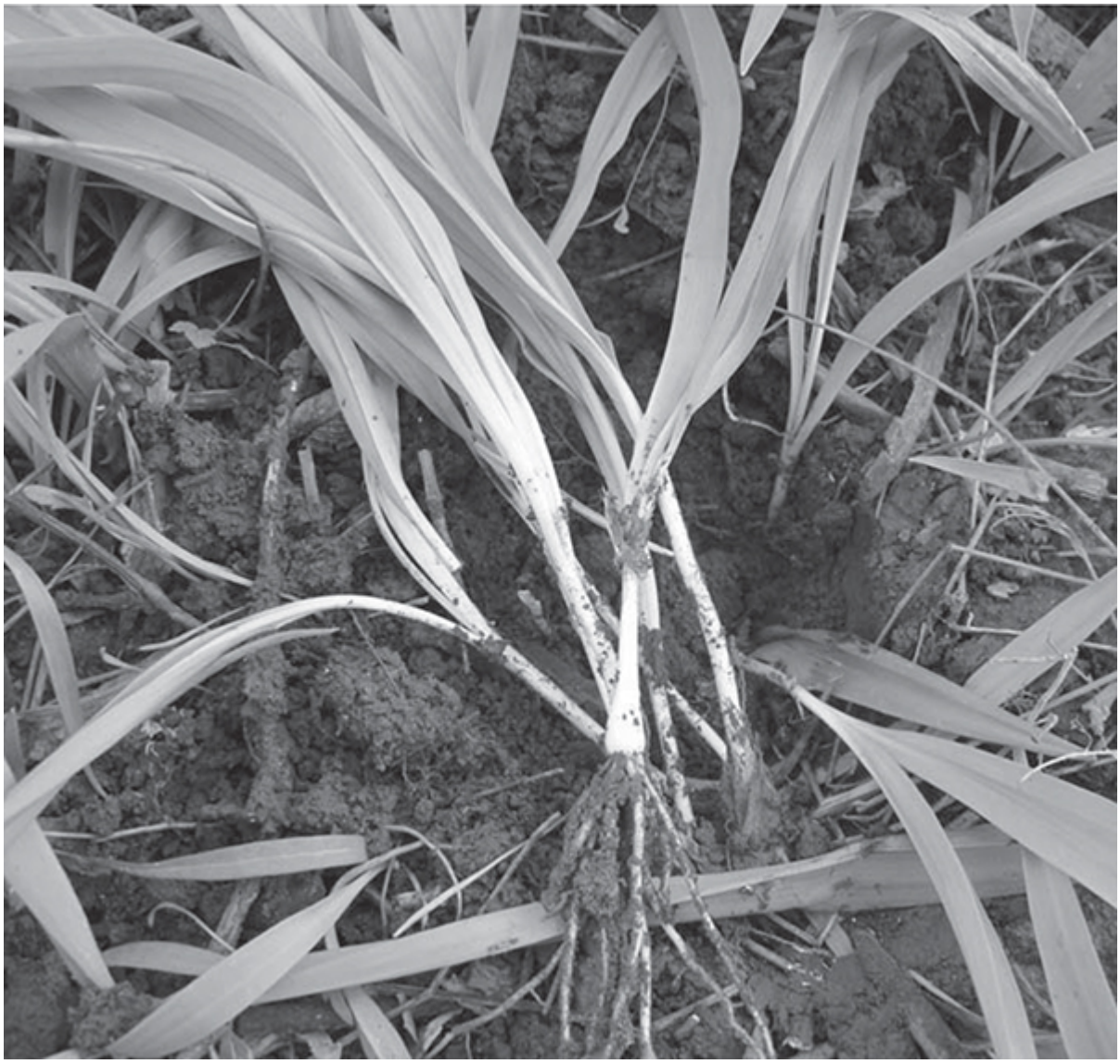
SKILL# 124
Survival Shelters: La Mossienda

I once spent six days with three other guys in a shelter that I affectionately referred to as La Mossienda. It was in a pine forest in eastern Kentucky that was laced with dense patches of heavy moss. We constructed a lean-to framework and thatched the roof with large sections of moss that peeled like carpet from the pine-needle forest floor. The moss roof and walls of the shelter not only blocked the wind and held in the heat, but also proved to be impervious to rain that fell steady for several nights. If moss is available, it makes an incredible shelter thatching material. An interesting side note, for what it's worth, is that the shelter was very well camouflaged and almost undetectable from behind.

A lean-to shelter roofed with moss.

SKILL# 125
Survival Plants: Wild Leek (Allium tricoccum)

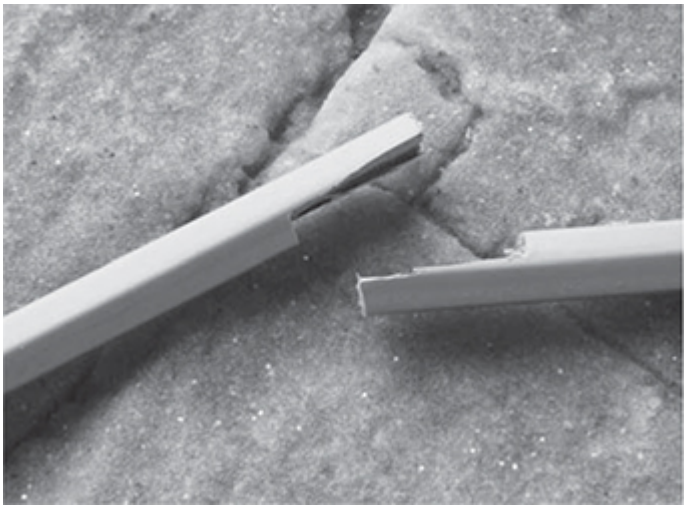
The wild leek is the king of North America's wild onions. Unlike most wild onions, this delicious edible grows in the forest, often in moist, shaded areas. You'll almost always find them growing in colonies of dozens or more. They have broad, bright green leaves with a purplish leading to white stalk and an onion-like bulb. The leaves, stalk and bulb are all edible just like an onion. After the plant dies in early summer, a flower stalk appears and lasts through winter, then you identify the plant by a little cluster of perfectly circular, shiny black BB-size seeds.



Wild leek leaves and bulbs ready to be washed for stir-fry or stew.

SKILL# 126
The Mated Notch Deadfall Trigger

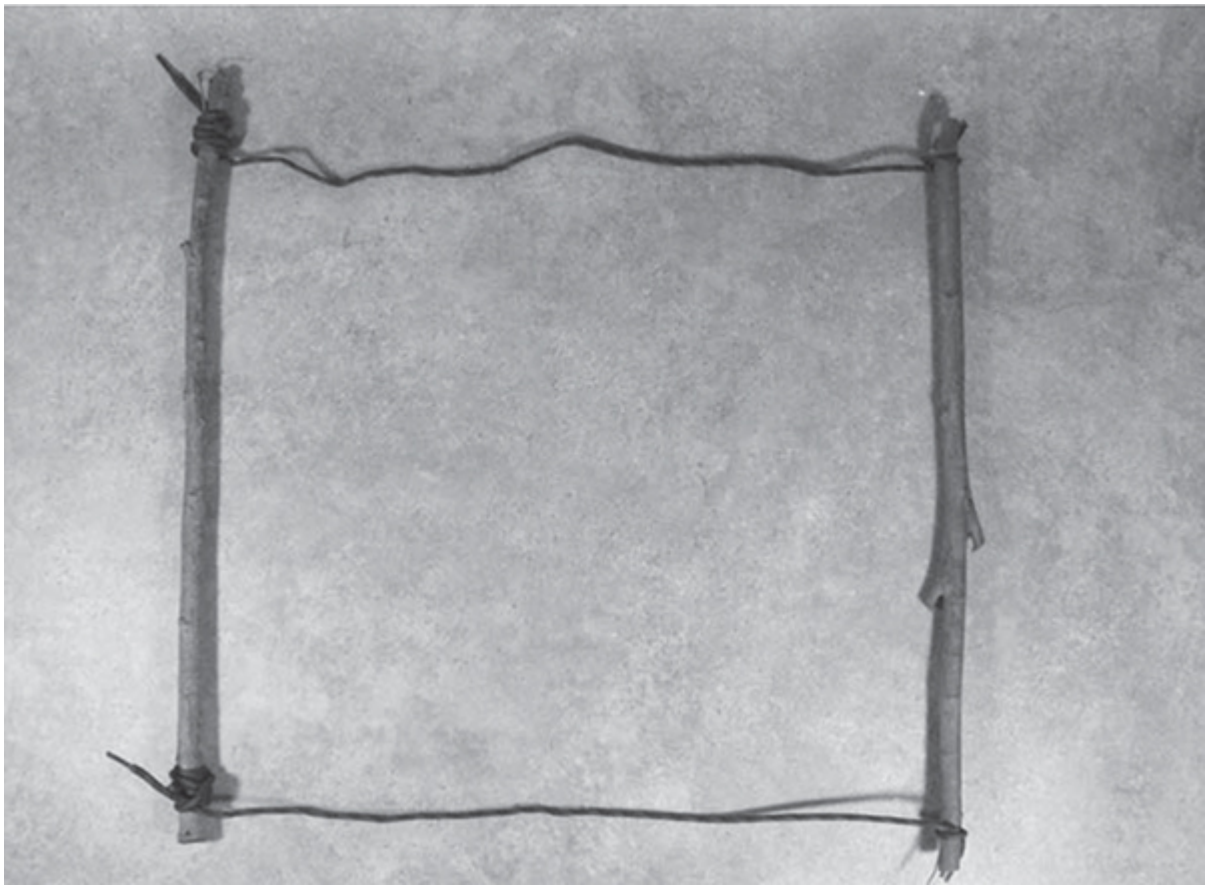
A sturdy stick the size of a No. 2 lead pencil makes one of my all-time favorite deadfall trap triggers. I call it the mated notch deadfall trigger. Start by sawing a notch in the middle of the stick that goes exactly halfway through it. Now, turn the stick over and saw another notch halfway through; this second notch should be about 1 inch above or below the first notch on the opposite side of the stick. Now, with your thumb on one notch, snap the stick into two pieces. It will almost always snap to create a perfectly mated trigger that makes a very sensitive deadfall trigger. See how this trigger is used in the toilet seat live capture deadfall.



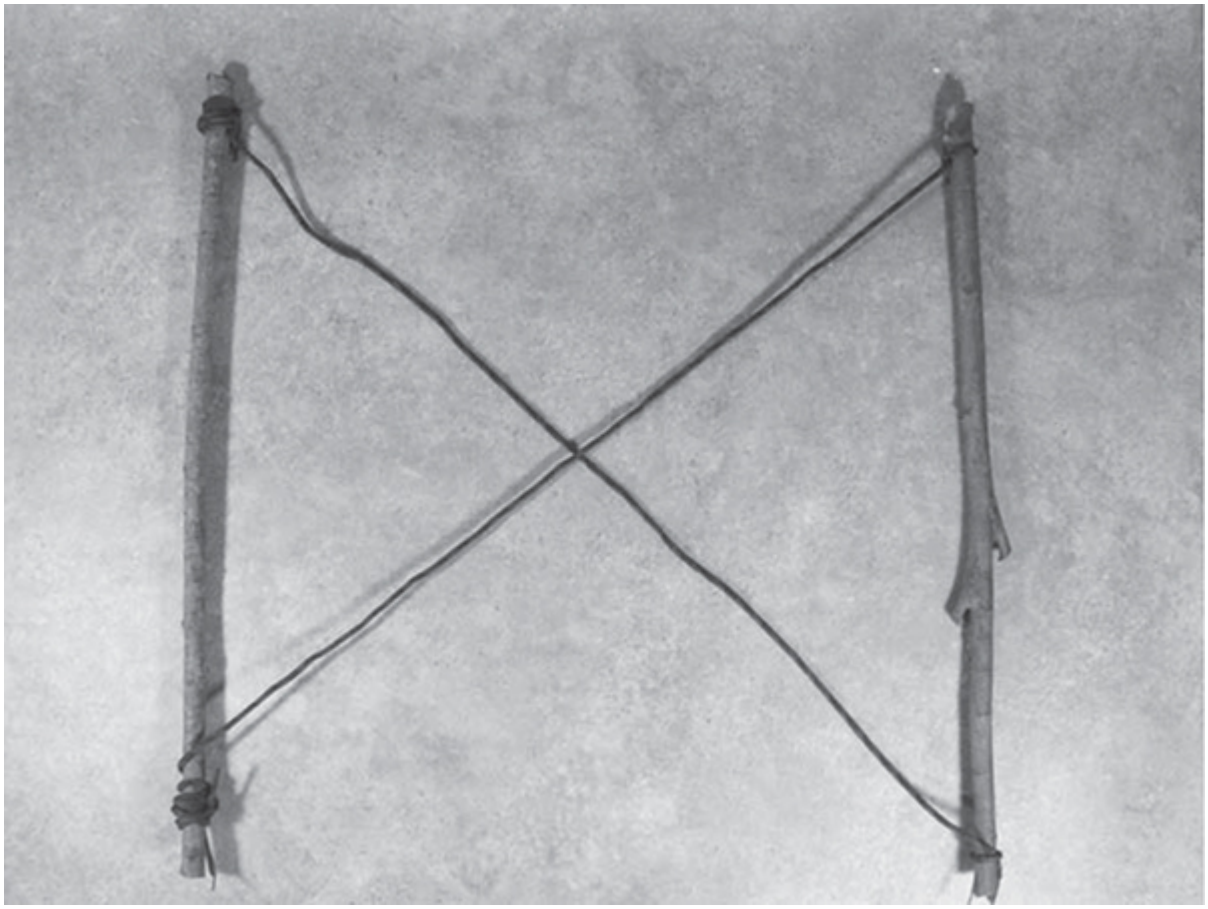
No. 2 pencil used to make mated notch deadfall trigger.

SKILL# 127
Build a Primitive Tension Cage

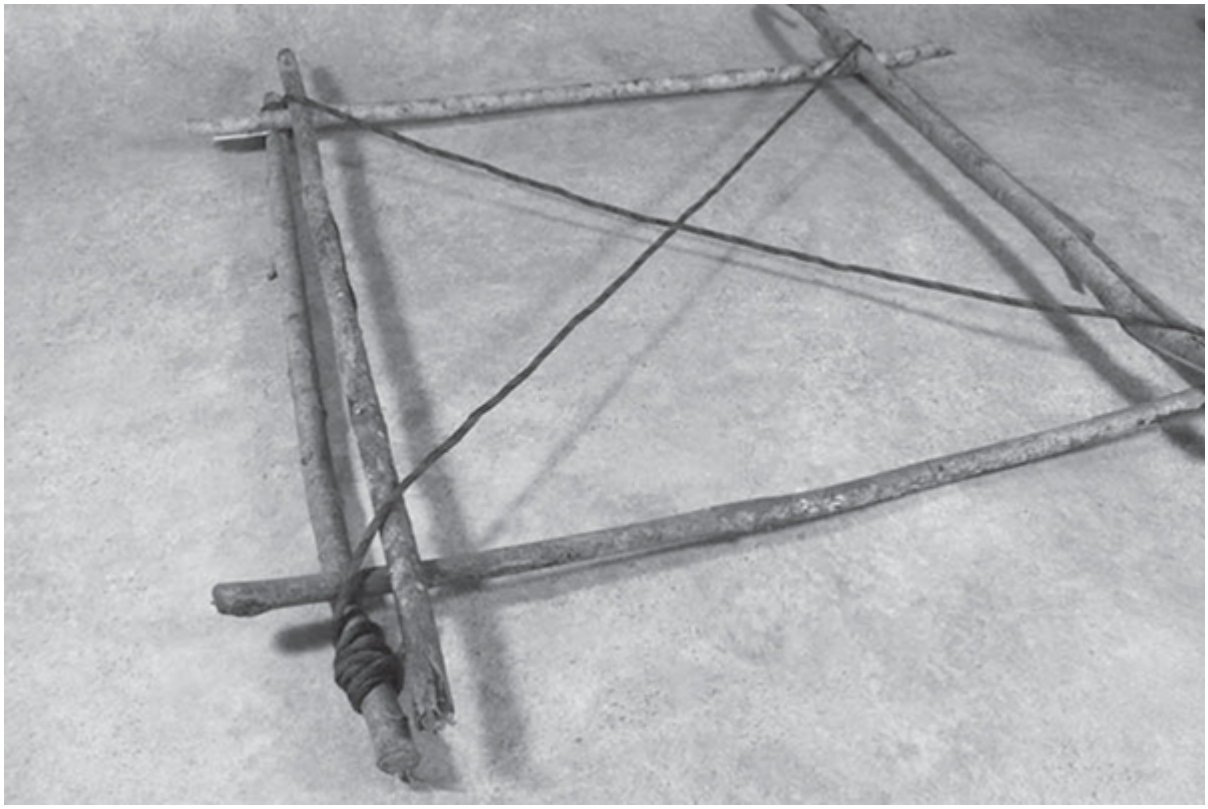
A stick-built cage held together with tension and cordage can be used in conjunction with the mated notch trigger to make a very effective live capture trap for birds and small game. Begin with two sticks connected to two pieces of cordage at each end as shown in the accompanying photos. Twist the sticks to form an X with the cordage. The result should be a fairly square shape. Feed nice and straight sticks in a log cabin format under the cordage as shown. Continue building the cage in a pyramid shape until you can't fit any more sticks under the cordage. The tension will hold the entire cage together very well. Set the mated notch trigger stick with two trip lines that run from the bottom of the trigger stick to the back corners of the cage. Place bait in between trip lines and wait for it to capture curious game.



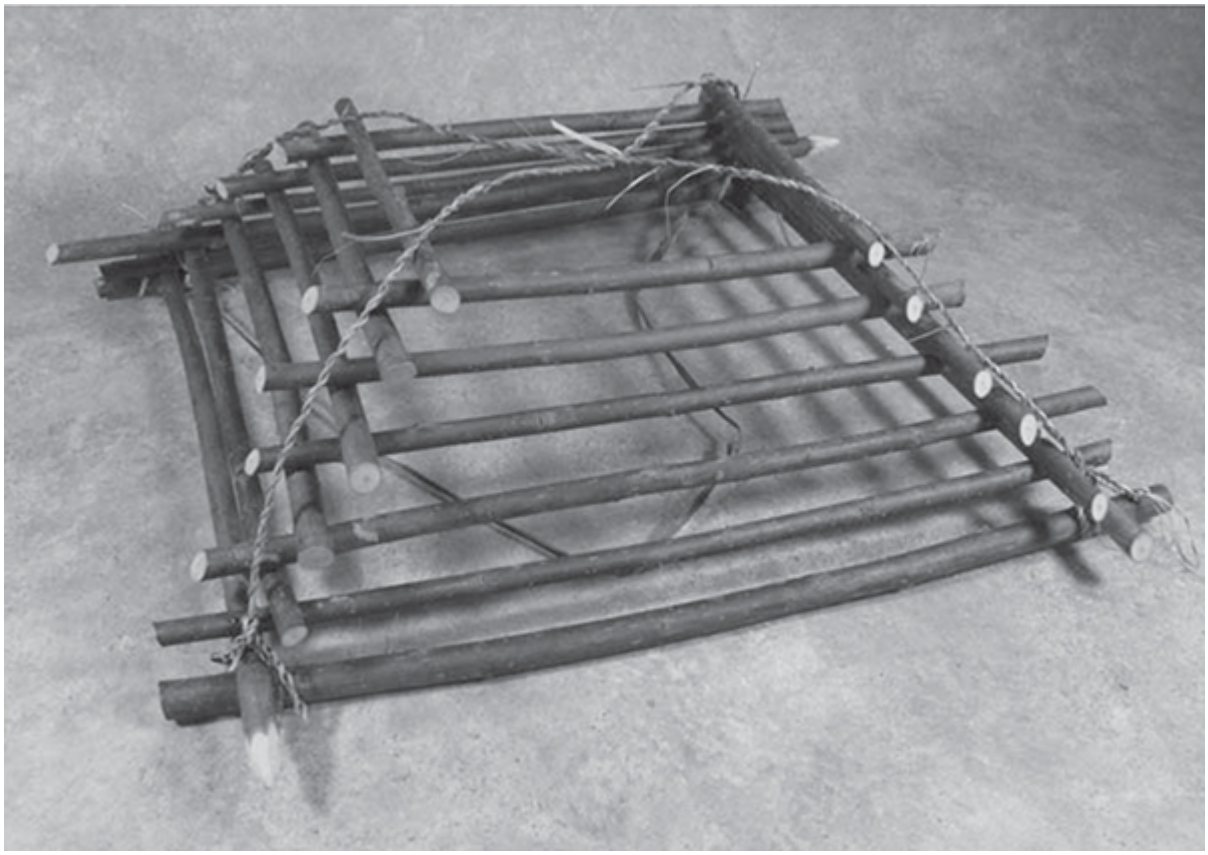
Two sticks tied together at the ends.



Stick rotated to form an X of cord in the middle.



Sticks inserted under the cord.



Stacked sticks held in place by the cords under tension.

SKILL# 128
The Toilet Seat Live Capture Deadfall

A circular pile of bricks stacked one brick tall topped with a toilet seat makes a very effective live capture bird trap. First make a circle of bricks that matches the footprint and outer rim of the toilet seat. When the seat is placed on top of the bricks no escape route should be available. The seat lid should be propped open using the mated notch deadfall trigger with two trip lines running from the bottom trigger stick to two small stakes in the ground inside the brick circle at the rear left and right. Bait should then be sprinkled on the ground in between the trip lines. While eating the bait, a bird (or sometimes two) will trip the line and collapse the toilet seat. There it will remain until you return.

Toilet Seat Deadfall.

SKILL# 129
The Single Log Ladder

A very effective primitive stairwell can be made from a single log that is very solid and at least 10 inches in diameter. Once the angle of the stairs is determined, a series of steps can be cut using a saw or axe by making right angle step notches along the length of the log. This makes an excellent step system for either descending into an earthen shelter or ascending into a raised shelter or tree house.

Notches cut in a log to make ladder steps.

SKILL# 130
Put 000 Steel Wool in Your Fire Kit Right Now

000 steel wool is one of the best fire-starting tinders available. It can be ignited into a red hot smoldering ember in a variety of ways, including touching a section of it simultaneously to the positive and negative terminals of a battery (a 9 volt works really well) and sparking with a ferro rod fire striker. Steel wool will only smolder and will need to be used in conjunction with a tinder bundle in order to achieve open flame. Even if it's fully submerged in water, the steel wool can be shaken and used soon after. It stores indefinitely and can also be used to remove surface rust from knives and tools if necessary.

SKILL# 131
Predicting Weather: No Dew? Get ready for rain.

Predicting weather in the wild can be a little tricky. One fairly reliable weather indicator is the amount of dew on the grass (or any surface) in the morning. When heat radiates from a surface at night and that surface temperature reaches the dew point, moisture in the air condenses and forms droplets. The ground cools faster on a clear night because heat radiates into the atmosphere faster than when there is cloud cover to hold it down towards the Earth's surface. Thus, lots of dew means clear skies. No dew indicates overnight cloud cover that likely will result in rain.

SKILL# 132
Why Sweating is Dangerous in Cold Weather

Every effort should be made to not sweat when surviving in cold weather. Sweating is dangerous for two main reasons. First, sweating is designed to cool the body. When sweat evaporates from the skin it carries heat away with it. Second, sweat can dampen clothing close to the skin. Moisture reduces a fabric's ability to insulate, especially cotton, and heat loss through convection is greater when moisture is present. If you begin to perspire in cold weather, either reduce physical exertion or remove layers of clothing to regulate your body temperature.

SKILL# 133
Survival Plants: Cattail

The cattail has edible parts during each season. In winter, the fibrous, horizontally growing underground rhizomes can be roasted directly on the coals of a fire. Peel away the pithy outer layer to access the sweet starchy matter and discard the dental floss-like fibers that run throughout. Very new shoots that resemble large white fangs (like a big dog fang), which sprout from the buried root, can be cooked like asparagus. To pull up the roots, grab the base of the plant and pull upward slow and steady. Work the plant from side to side in the mud until the roots pull free. In spring, the green corn cob-like seed heads can be roasted over the fire or boiled and eaten like mini corn on the cob. The center core of the bottom of the stalk is also edible, either raw in salads or cooked like most vegetables. To access, grab the base of a new cattail plant less than 24 inches tall and pull upward quickly. After a rubbery squeaking noise, the shoot will pop out. Peel away the outer layer and enjoy the tender white middle portion.

Edible shoot, rhizome and seed head of the amazing cattail.

SKILL# 134
Don’t Confuse Cattail with Poisonous Iris

The edible cattail is very similar in appearance to the poisonous iris, which also has a reputation for growing around waterways. Both leaves are similar in color and have a long sword-like appearance. Both root systems are white and can easily be confused for each other. The main difference is the formation of the stalk. The bases of the cattail leaves wrap around the stalk at the bottom in circular layers. The bases of the leaves on the wild iris are flat against the stalk and do not wrap around. The other difference is that the cattail has virtually no odor when cracked open, while the iris has a very pungent odor. Confusing these two plants could cost a survivor their life.

SKILL# 135
How to Split Bone

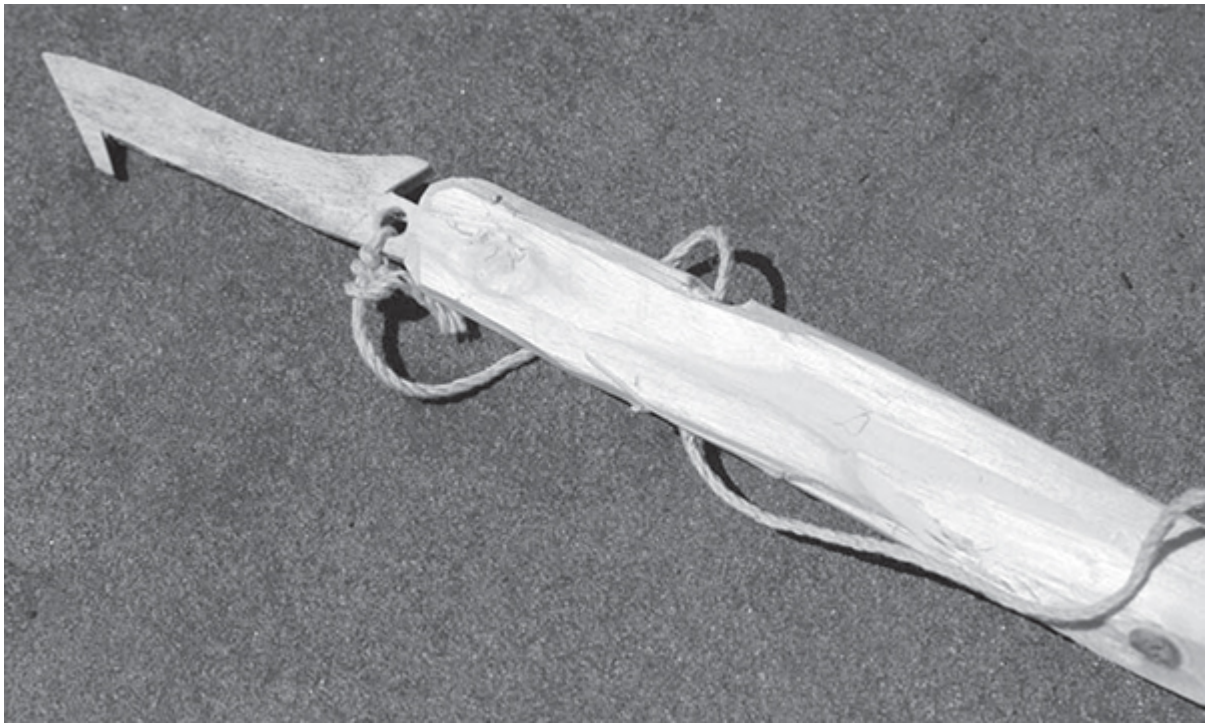
From the swamps of Florida to the deserts of Arizona, I've found animal bones in every single environment in which I've traveled. Bones are a survival resource that cannot be overlooked. Primitive cultures utilized bone tools extensively in the form of knives, awls, spears and gigs – just to name a few. Almost all bone tools require the bone to be split and worked. The most effective and accurate method of splitting bone is to first score it with a sharp rock or knife along the line you hope it to split on. After a visible score line is made, the bone should then be struck along that line with a large solid rock. In most cases the bone will readily split along the score line.

SKILL# 136
Make a Solar Ember From Crushed Hickory Nut Shells

I am always on the hunt for a natural material that will take a smoldering ember from a solar magnifying lens. One that works pretty well is crushed and powdered hickory nut shells. When dried, they are a very lightweight material that accepts and keeps a solar ember very quickly.

SKILL# 137
Make a Harpoon-Style Bone Fish Gig

Start by splitting a section of bone to be used as the harpoon point. The forward tip of the point should be sharpened and barbs should be abraded or carved along the shaft. A small round nock should be carved at the opposite end with a hold drilled through it to attach the tether to. The rounded nock should be made to recess into a depression carved or drilled into the end of a long sturdy spear shaft. This nock depression should hold the point firmly in place but also allow it to be pulled out with a little effort. A 4- to 8-foot tether should be tied from the spear shaft to the hole drilled in the harpoon point. When the fish is speared the barbed point will pull from the shaft and can then be brought to shore by the tether.



Bone harpoon point fitted into the hollow end of a willow sapling.

SKILL# 138
Survival Plants: Reed Grass (Phragmites australis, Phragmites communis)

Reed grass is among the tallest of grasses and is found along waterways and marshy areas. It is useful and edible in many ways. The young shoots and leaves can be prepared as a potherb like spinach. The roots can be gathered and boiled or roasted like potatoes. The grass itself makes incredible thatching material for shelters and windbreaks, as well as grass sleeping mats and flooring. I've used the hollow stems as blow tubes for coal-burned containers and straws for drinking. The dry seed heads make excellent flash tinder that can ignite with just the spark from a broken lighter. Between reed grass and its neighbor the cattail, a survivor will want for nothing more.

Reed grass blowing in the wind.

SKILL# 139
Survival Shelters: The Wigwam

A wigwam is, in essence, a dome-shaped framework of flexible saplings that is covered with grass thatching, bark slaps, green boughs or some form of fabric covering such as a tarp. Start by driving holes using a sturdy stake and mallet every 2 feet to mark the perimeter of the wigwam circle. Next, cut enough flexible saplings to fill each pre-driven hole. Push the saplings into the holes, flex them toward the center and either tie to or twist upon the one directly across from it. Once all of the saplings have been flexed inward, then weave flexible saplings horizontally around the frame every foot all the way to the top. Cover with available material, starting from the bottom to shed rain like roof shingles.

Wigwam framework ready for thatching using flexible saplings in the Sonoran Desert.

SKILL# 140
Survival Shelters: The Debris Pod

The debris pod is a hybrid shelter using principles from the post bed, the debris hut and the wigwam shelter. Begin by building a raised or post bed. Then, use small flexible saplings to create an arched ceiling over the bed – like a tunnel. Next, cover the entire arched ceiling with a reflective mylar emergency blanket; using wilderness clips to hold it in place (see Skill #257). Finally, pile on dry leaves and vegetation similar to a debris hut. This creates a shelter that has a heat-reflective core, incredible insulation properties AND is waterproof.

The debris pod arched sapling framework over a post bed covered with an emergency blanket.

Debris pod frame covered in dry leaves for insulation.

SKILL# 141
Survival Trees: Maple

The maple tree is an incredible survival resource. Its branches make strong and sturdy shelter frameworks as well as excellent cooking sticks, spits, forks, pot hangers, tripods and cranes. The best feature of the maple, however, comes in late winter and early spring. Its sweet drinkable sap is the source of delicious maple syrup. The sap not only contains vitamins, minerals and sugar, but also requires no purification to drink. A thirsty survivor can consume it directly from the tree. One maple tap during peak season can produce as much as 2 gallons of drinkable sap per day.

SKILL# 142
Eat Maple Seeds

The helicopter seeds of the maple are edible and can be eaten raw or prepared by steaming or boiling while still green. Most maples produce their iconic helicopter seeds in the autumn. The “wing” and fiber sheath should be removed from the seed before consuming. Once removed, the seed resembles a small green pea. Like many wild edibles, expect a slightly bitter taste.

Maple “helicopter” seeds ready to peel and cook.

SKILL# 143
How to Identify a Maple Tree in Winter

First, maples have opposite branches. Look for branch patterns where two branches are growing from the same branch exactly opposite of each other. This immediately narrows the field to maple, ash, dogwood, chestnut and buckeye. Maple buds also grow in pairs opposite of each other. The tiny buds of the sugar maples are brown and very pointy. They also look like they have little scales. Larger maples have very textured bark, sometimes even shaggy in appearance. I've even mistaken big old sugar maple trees for shagbark hickories at first glance. Young maple trees, however, can have smooth grayish bark. Lastly, analyze the ground beneath the tree and see if the dominant leaf is maple shaped. Between the opposite branch pattern, buds, bark and leaf litter you should be able to positively identify a maple in winter.

SKILL# 144
Survival Trees: Elderberry

Elderberry is a deciduous shrub found all throughout the Northern Hemisphere, except in areas of extreme. A year-round identifying feature of the elderberry is its bark. The exterior of the bark is covered with little, evenly spaced, raised “bark warts.” This is a very unique feature of the elderberry. In spring, the elderberry bush produces huge flat dinner plate-size flowers that are actually made up of many small white flowers. These flowers can be battered and fried (elderberry fritters), but are traditionally used to make elderberry syrup by steeping them in sugar water. If left to their own devises the flowers will ultimately transform into clusters of purple to black berries. These can be used to make jellies, jams, wines and all sorts of other delicious treats.

Elderberry is one of the few trees and bushes in the eastern woodlands that have a hollow stem. Although it’s not completely hollow, it is filled with a large pith that can be reamed out quite easily. A section of branch can be cut, reamed and used as a spile for tapping maple trees.

Note: The leaves, roots and bark of elderberry are poisonous and should not be consumed. I have had no ill effects using the branches as improvised spiles, but they should be considered a last resort if other options are available.

Unique exterior of elderberry bark.

SKILL# 145
How to Tap a Maple Tree

Tapping a maple tree is very simple. First, you have to tap at the right time of year. February through May is the best time period because the sap is really running to feed the tree for spring growth. Any size maple over about 6 inches in diameter can be tapped, and the really large trees can be tapped several times around. I've had maple trees yield up to 2 gallons of drinkable sap per day. To tap a maple, simply drill a hole ½ inch deep using an awl, the point of your knife or even a sharp rock. Choose a hollow piece of reed grass, river cane or bamboo to fit into the hole and act as a spile. Pack around the base of the spile with clay or thick mud. This will force the sap through the spile rather than seeping around the edge. Then place a container below the drip to collect the precious sap.

Hollow reed spile dripping with drinkable maple sap.

SKILL# 146
How to Make Maple Syrup

Maple syrup is simply maple sap that has been boiled to steam away the water. Maple sap is mostly water but also contains sugar – sometimes as much as 6 percent. As the water is boiled away, the remaining liquid gets sweeter and thicker, ultimately making maple syrup. It's not rocket science. Simply pour the sap into a metal container and boil until it reaches your desired thickness. Keep in mind that it takes 40 gallons of maple sap to make one gallon of maple syrup – so you'll have to boil down quite a bit of sap to yield a worthwhile mouthful. The sap from white birch trees also contains sugar, just not as much as maple.

SKILL# 147
How to Make a Coal Burned Container

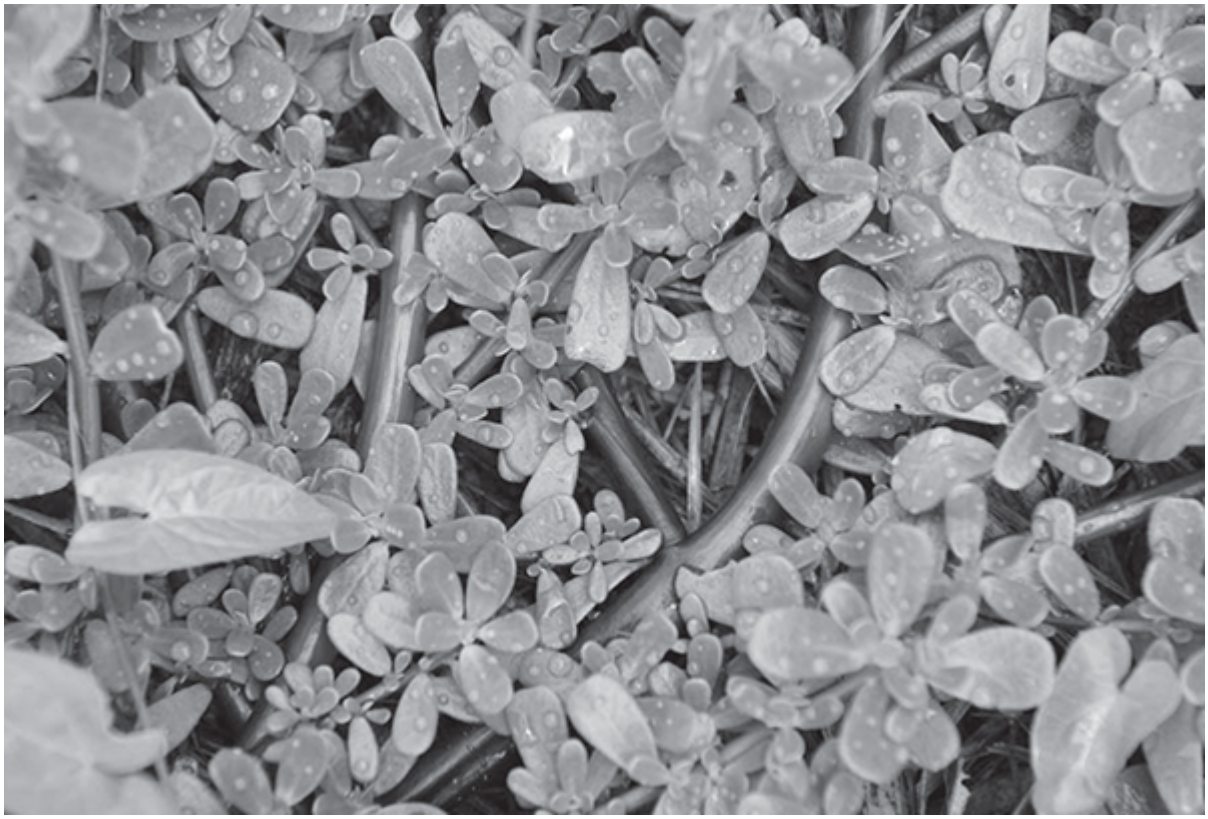
A durable wooden survival container can be manufactured by utilizing hot coals from the fire – a technique called coal burning. The wood chosen should be dry, seasoned and free from rot, splits and hollows. Coal burned depressions burn much faster in softer woods such as cottonwood and tulip poplar than hickory and oak. Once a piece of wood is selected, carve a small depression in which to place a grape-size red-hot coal from the fire. Blow on this coal with a hollow tube or reed to drive the heat from the coal into the surrounding wood. Slowly, a depression can be burned by adding fresh new coals as the depression grows. Mud and wet sand can be used to control the burn and make symmetrical depressions.

The author using reed grass to create a coal burned container.

This finished container can hold 4 cups of water.

SKILL# 148
Survival Plants: Purslane (Portulaca oleracea)

Purslane is a delicious ground-hugging wild succulent that can be eaten raw or added to soups and stews. It is a low-growing, sprawling plant that has waxy green leaves and purplish stems. Some call this plant “Beaver Tail” because the leaves are flat and shaped like tiny little beaver tails. This is an excellent wild edible when water is scarce because of its thick succulent leaves and stems.



Purslane.

SKILL# 149
Make a Socketed Celt Ax

The same coal burning technique used to make a container can also be used to make a socketed celt ax. A triangular shaped rock will need to be found or knapped to use as the ax head. Oftentimes a suitable stone ax head can be found with just a little effort. The cutting edge can be abraded on another stone or knapped using a hammer stone to create a sharper edge. Find a green or very strong seasoned handle, and use the coal burning technique to burn a hole all the way through, then ream it to size using a knife or sharp rock. The hole should be large enough for the smaller end of the triangular shaped ax head to fit. The shape of the head wedges it deeper and tighter with each strike. This socketed design makes lashing the ax head in place not always necessary.

Small socketed celt tomahawk.

SKILL# 150
How to Make a Simple and Functional Set of Wilderness Tongs

From placing hot coals into coal burned containers to handling hot rocks or coal-cooked meals, wooden tongs come in handy for a huge variety of chores. To make your own, start by cutting a 2-foot by ½- to 1-inch diameter section of green limb from a hardwood tree such as maple, oak, hickory or elm. It should be as straight as possible with no large forks, knots or bends. Use a knife to split this section in half. Now bend one of the halves in half so that the flat interior sides of the split wood match up. The bark side of the half branch will likely split and break, but enough of these exterior fibers will remain to cause the tongs to spring back open. To complete the tongs, close them shut completely, matching up both halves perfectly, and carve both ends flush to allow more precise dexterity and use. A piece of cord can be used to hold them partially closed, but isn't really necessary.

Tongs made from a maple branch.

SKILL# 151
Boil Water and Cook Stews With Hot Rocks

Hot rocks can be used in wooden coal-burned containers to boil and purify water, or to heat and cook wilderness stews. Here is what you need to know: First and foremost, rocks placed in the fire to heat should never be collected from a stream or lowland area. The water inside them will turn to steam once in the fire and the rocks will crack or explode. Only use dry rocks found on the surface. A good typical size is between a golf ball and egg. To heat, place them in the coals of a fire using makeshift tongs. Once red hot (after approximately 30 minutes), remove the rocks with your tongs and dip quickly into a secondary container of water to remove loose ash, then place them into your boiling or cooking vessel.

Heating water in a coal-burned container using hot rocks from the fire.

SKILL# 152
Sleep on a Coal-Heated Bed

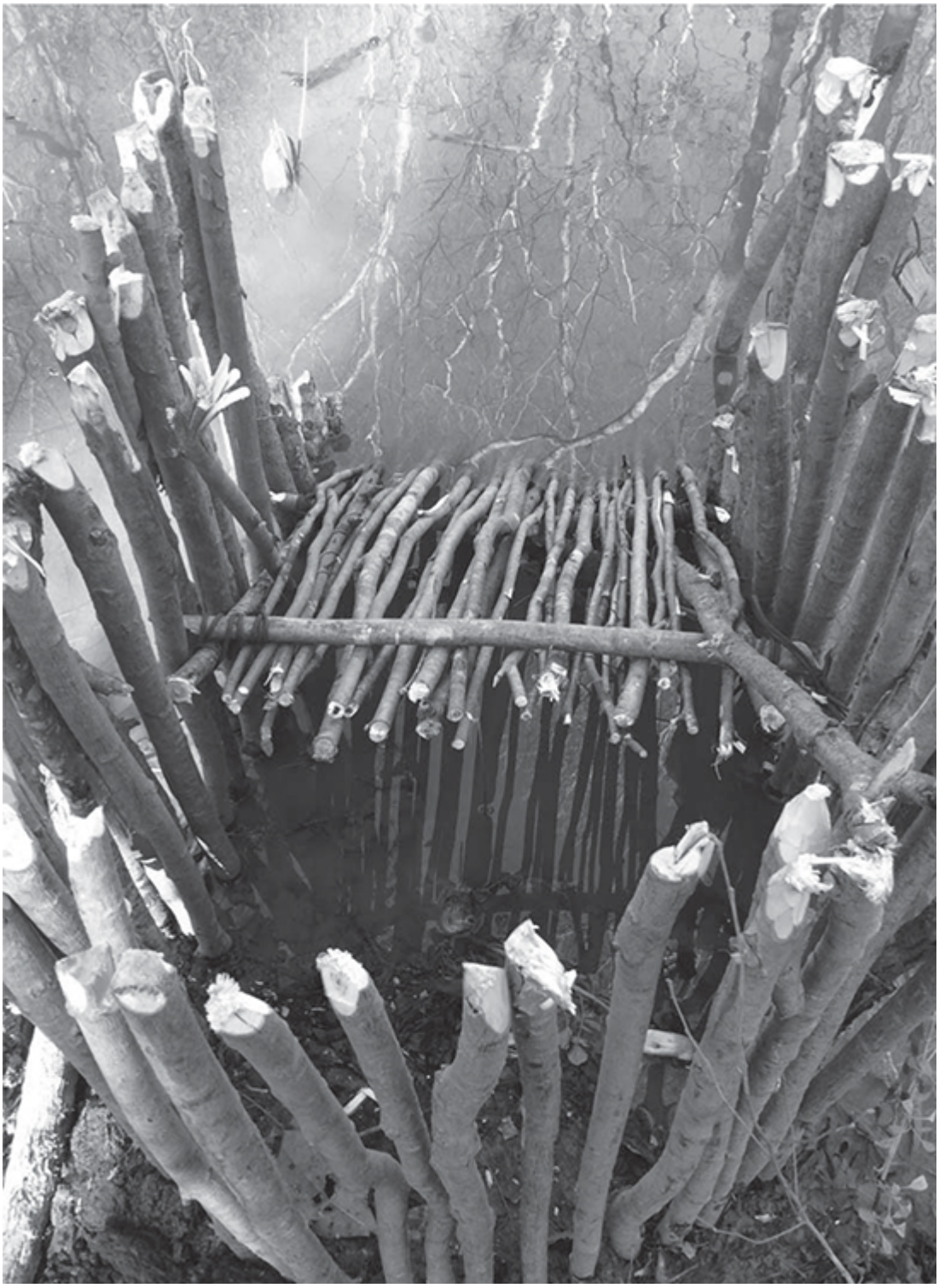
If you've ever seen the movie *Jeremiah Johnson*, one of my favorite scenes is when he makes a coal-sleeping bed and wakes up nearly on fire because he doesn't cover them with enough earth. Heated-coal sleeping beds take a little effort but they have been directly responsible for some of the best nights of rest I've ever had in the wild.

Begin by digging a trough about 2 feet wide as long as your body (just a torso size bed can be made if you're limited on time) and about 8 inches deep. Build a long fire in the trough and spread the resulting coals throughout. Ideally, you'll have enough to be about 2 to 3 inches deep in the trough. Cover these coals with the remaining 6 or so inches of dirt. The hot coals will drive wet steam from the ground so BE SURE TO WAIT about an hour before going to bed – otherwise you'll end up damp. Sleeping on a plastic sheet or tarp will help prevent the steam moisture from dampening your clothing or sleeping material. Expect this entire process to take two to four hours to complete.

SKILL# 153
Make a Drawbridge Live Capture Turtle Trap

To build a great turtle trap, begin by creating a U-shape fence on a shoreline where you've seen turtles retreat into the water. This is done by driving 36-inch stakes into the ground very close together as shown in the accompanying photo. Next, using the square lashing, build a rectangular frame (the drawbridge) that perfectly fits into the opening of the stake fence. The drawbridge door should be angled inward to form a drawbridge ramp that the turtle can climb up from the water. It can be tied to the sides of the fence to hold it in place. Finally, place a dead or rotten fish on the water's edge INSIDE of the stake fence so that nearby turtles can smell their favorite food.

A hungry turtle will climb up the ramp to find the fish and once he drops over the edge into the fenced area he will not be able to get back out. This is a trap that can work over and over again. Once you've caught your first turtle, the entrails can be used as bait.



A good example of a drawbridge trap looking from behind.

SKILL# 154
Make a Set of Forked Stick Tongs

Heated rocks the size of softballs or larger can be cumbersome to move or place with the tongs discussed earlier. A larger set for handling bulkier stones can be made in a similar fashion by using a 48-inch forked sapling that is 1 inch in diameter. The forked end is used like a shovel to stabilize the rock while the folded top end is used to hold it in place. The tongs are made to fold by thinning out the center area of the sapling, the part that will bend, with a good sharp knife.

SKILL# 155
Make a Primitive Storage Heater

If a metal bucket can be sourced, an incredible primitive shelter heater can be built with very little effort. Start by placing dry, softball-size rocks into the fire until they are red hot. Place them with a shovel or the tongs mentioned earlier into the bucket until it's full. Next, pour dirt, sand or small gravel into the bucket to cover the rocks. Make sure that all areas between the rocks are filled. Finally, place the bucket inside the shelter on a flat stone at least 18 inches from anything flammable. The rocks will heat the sand and radiate heat for a solid four to six hours.

SKILL# 156
How to Eat Pine Bark

Pines are evergreen trees that can be easily identified by their clusters of between three and five green pointy needles. Some pine needles are just a couple inches long, while others are as long as 15 inches. The good news here for the survivor is that the cambium layer of pine tree bark is edible. The cambium layer is the white colored layer just under the rough outer bark, but before the hard inner wood. It can be peeled off or scraped by the handful once the outer bark is trimmed away. It is best prepared fried with a little butter – but is also edible boiled and roasted. It has a very strong flavor and can be difficult to eat, but it will fill the belly and does provide vitamins and minerals, as well as some carbohydrates. It is really only considered a food for the very desperate.

SKILL# 157
Survival Plants: Chicory (Cichorium intybus)

A close relative to the dandelion, chicory is best identified by its bluish purple flower. The leaves at its base are also very similar to dandelion. It can grow quite tall, reaching upwards of 3 to 4 feet. It's stalk is spindly and disjointed, like a rickety old man's legs. Everything above ground can be prepared like spinach, but expect a tinge of bitterness. Chicory is best known as a coffee substitute. The root can be roasted, ground and used exactly as you would coffee, with a very distinct flavor. Chicory coffee brings a high price from gourmet retailers and would be quite the treat for a scavenging survivor.

Chicory flower bloom.

SKILL# 158
Survival Shelters: The One-Man Garbage Bag Shelter

A 55-gallon garbage bag makes an interesting one-man shelter if you know what to do. Start by turning the bag over to the bottom and follow one of the side seams down about 12 inches, then make a 2-inch sideways slice with your knife. Now, pull the bag over your head and stretch the slice that you made around your face to create a tight seal from rain and snow. Crouch behind a natural windbreak such as a large tree or rock for further protection. The bag will keep you dry, act as a windbreak and also help to trap some vital body heat.

The author using a trash bag as a one-man shelter.

SKILL# 159
Survival Plants: Mullein

Mullein, often called lamb's ear because of its large, soft and fuzzy lobe-shape leaves, is a great survival resource. Mullein is a bi-annual, meaning it has a two-year life cycle. The first year it grows a basal rosette of large, pale green fuzzy leaves. The second year it grows a straight woody flower stalk covered at the top with tiny yellow flowers. The soft green leaves make excellent natural toilet paper and soft padded shoe sole inserts for added comfort. You'll find its best survival properties in fire making. The dead, dry flower stalk makes excellent hand drills, and the center pith is very effective solar tinder that smolders like punky wood. The dry leaves make an impressive tinder bundle, and the small branches or split stalk make suitable kindling. The dry flower head makes a serviceable torch when saturated in pine resin and lit on fire.

Second-year mullein plant with flower stalk.

SKILL# 160
Survival Cooking: The Cantilevered Cooking Crane

A Y stick and an upside-down forked branch can be used to support a long stick to hang a pot over the fire. Changing the small rear upside-down forked branch to a much taller one will allow the long stick to be levered in a horizontal position, which is perfect for a one-sided roasting spit for wild game.

Pot hanging from a cantilevered cooking crane.

SKILL# 161
Survival Trees: Mesquite Tree (Prosopis)

I've spent several weeks living off the land in the canyons outside of Tucson, Ariz. This area is covered in groves of mesquite, which grows in arid environments. Mesquite is not only great for flavoring barbecue, it also produces a pod with seeds that is quite delicious. The pods resemble pea pods and turn tan with age. The pods and seeds are edible raw or boiled when green and tender, and have a rather sweet flavor. Both the pods and seeds turn very hard with age and can be ground together or separately into a flour that can be used for baking or a boiled gruel.

Edible mesquite pods.

SKILL# 162
Welded Ring Pull

This isn't so much a skill as it is a tip. I always keep a small cooking pot in my Bug Out Bag and camping pack. A modification that I've really found to be useful is to weld a small ring pull on the bottom rim of the pot on the opposite of the pour mouth. A small forked stick can be quickly hooked into this ring to not only aid in pouring, but also to help maneuver the pot in and around the fire for cooking or boiling. It weighs very little and doesn't impact space in the pack.

SKILL# 163
Natural Navigation: Using Trees to Find Direction

Tree growth patterns are a fairly reliable way to determine direction in the wild due to the consistent travel of the sun through the sky each day. In the Northern Hemisphere, the sun rises in the east and sets in the west, and is southward facing throughout the day. Consequently, the south side of trees will appear to be more full because that side of the tree receives the most sunshine. Look for asymmetrical growth in plants and trees to determine which side is thicker – and that is likely south.

SKILL# 164
How to Actually Use an Emergency Blanket: Use #3 – The Bed Sheet

An emergency blanket placed upon a properly built post or raised bed just like a regular bed sheet can go a long way in helping to stay warm. Not only will it act as a moisture barrier and wind barrier, it will also act as a heat reflector for body heat radiating downward. The noise from the blanket can be distracting – but the reduced convection and conduction makes up for it many times over.

SKILL# 165
Make a Multi-Material Ladle

A cooking ladle for serving survival stews or broths can be quite useful and is pretty easy to make. A stick with a 4-inch split at the bottom can be used to hold a fold made in a circular piece of material such as birch bark or plastic. Simply cut the material in a circular shape and fold a small section over itself to form the seamless ladle cavity. Insert the folded portion into the split and serve up your stew.

Ladle made from thin plastic material and a split stick.

SKILL# 166
Make a Roasting Racquet

A very effective roasting implement can be made from a long green branch with two long, opposite facing branches (maple works perfect for this). The two long opposite facing branches can be formed into a racquet shape by twisting them together at the top. The center part of the branch should be twisted between them for stability and trimmed flush. Meat or fish can be placed on green skewers that are threaded under one side of the racquet, over the center branch and back under the other side of the racquet. The slightly bent pressure on the skewers holds them firmly in place.

Fish roasting on racquet-style cooking rack.

SKILL# 167
Make a Wooden Snow Saw

When making snow block shelters such as an igloo, a large saw to cut through snow speeds the process tremendously. Most survivors don't have access to such a large saw. No worries, a simple substitute can be made by splitting a flat center section of a branch, carving toothed notches along one edge and sharpening the point to pierce the snow. A wooden saw makes a great tool for buzzing through dense layers of compacted snow.

SKILL# 168
A Desert Dessert

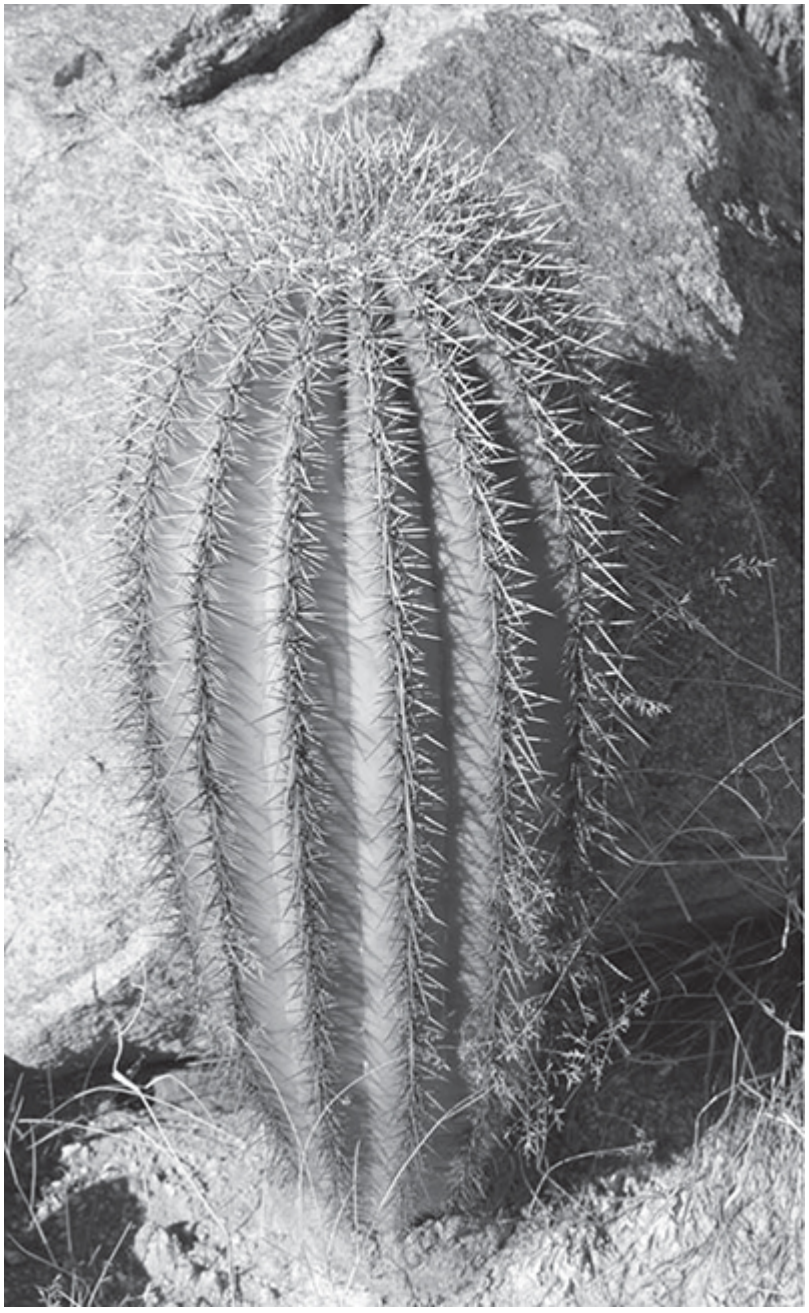
The desert can be a formidable survival adversary. Unlike the Eastern woodlands, wild, edible plants in the desert are few and far between. One plant edible that is both easy to find and great to eat is the fruit of the fishhook barrel cactus. Barrel cactus are easy to identify. They are large and round like a barrel and covered with thick, sharp fishhook-shape thorns.

Throughout the year, this cactus produces small yellow (when ripe) fruits on the very top of the plant. They look exactly like little tiny pineapples. The flesh and seeds of this fruit can be consumed raw or roasted. The flesh has a tart refreshing flavor and the seeds have a crunchy nutty flavor. In an environment where water can be very hard to come by, these lush fruits are a huge score.

Tiny pineapple-like fruit on top of the fishhook barrel cactus in the Sonoran Desert.

SKILL# 169
Debunking the Barrel Cactus Myth

Contrary to popular belief, the barrel cactus is not a dependable source of drinkable water. I once had the opportunity to cut open a small barrel cactus that was being discarded from an indoor planting display (they are highly protected in the wild) and it was quite an educational experience. First, it was very difficult to cut the top off of it and I ultimately had to use one of my large machetes to do so. Second, there is no “water” inside. The inside consists of a fleshy pulp that tastes horrible. The fluid in cactus is very acidic and can consequently cause upset stomach, diarrhea and nausea. I soaked up some of the moisture with my bandana and couldn’t even swallow the few drops that it provided. If a barrel cactus in the wild doesn’t have fruit, keep walking.



Barrel cactus in the Sonoran Desert.

SKILL# 170
How to Find and Harvest Pine Resin

First, it's important to understand what pine resin is. Pine resin is a fluid naturally secreted by a pine tree to seal over wounds. It also has antibacterial properties that help to protect and preserve the tree. It is an incredible survival resource that has an infinite number of applications. To the uneducated, finding and harvesting pine resin is easier said than done.

The quickest way to harvest pine resin is to find dried nodules that have oozed from an injury on the tree to seal it over. These are typically covered in dirt, dust and bark and can be difficult for the untrained eye to see. Pine sap will drain from all injuries that puncture through the outer layer of bark. This can be a branch break, an insect or bird hole, or a scar from another fallen limb or tree. In warm climates, several V-shape cuts can be made into the bark of a pine to force pitch production and make harvesting easier with the use of a container below to catch the resin running out.

A good example of several dry, crusty pine sap nodules on the side of a pine tree.

SUMMER

SKILL# 171
Survival Cooking: Flat Stone Skillet

I typically cook wild game using one of three different methods: boiling, roasting or frying. If a modern pan or skillet isn't available, a flat rock will work with great results. Choose a rock on the surface of the ground rather than retrieved from under water. Rocks submerged in water will crack, pop and explode as the saturated water inside of them turns to steam. Build a platform next to the fire using other stones or cut green logs to rest the stone across. Scoop hot coals or build a fire underneath to heat it to frying temperature.

Cut of venison frying on a hot rock.

SKILL# 172
How to Make Pine Pitch Glue

Melted pine pitch mixed with crushed charcoal in a three-to-one ratio makes one of the best natural adhesives available. Primitive cultures used pine pitch glue to set arrowheads and glue fishhooks together. The addition of one part beeswax or animal fat adds a little elasticity if the pine pitch and charcoal mix is too brittle for the application. When melting the resin, be sure to skim off all impurities such as bark, dirt or insects. The charcoal must be crushed to a fine powder consistency. Pine pitch glue is a thermo-glue so it can only be applied when heated, but it can be stored indefinitely and heated for use as needed.

SKILL# 173
Use Pine Pitch Glue and Natural Cordage to Make a Primitive Fish Spear

Pine pitch glue was used extensively by primitive people to attach spear points, arrowheads and axes onto handles and shafts. A very effective fish spear can be made by lashing a sharpened wood or bone sliver to a very sharp, fire-hardened spear point. The edge of the wood or bone sliver should be angled at one end to fit flush against the spear point. Once lashed together, the entire lashing and intersection of sliver and point should be coated and sealed with pine pitch glue. Once coated, a knife tip or sharp rock should be heated over a flame and used as a putty knife of sorts to smooth the pitch glue and make a flawless transition from wooden point to lashed sliver. The pitch glue makes penetration easier and holds the lashed sliver securely in place. A Pine Pitch Glue Survival Skills Kit is available at www.creekstewart.com/skills-kits/.

Wooden barb glued on the end of a shaft to make a fish spear.

SKILL# 174
Cattail Head Torch

A very effective torch for lighting camp or night fishing can be made by soaking a dead and dry, yet firm, cattail seed head in melted pine pitch. It should then be stuffed into the end of a green limb that has been split four ways. One cattail head will burn for about 30 minutes.

Cattail head drizzled in melted pine pitch.

Cattail torch on fire.

SKILL# 175
How to Sleep in a Wool Blanket

Wrapping up in a wool blanket bedroll may seem like common sense, but there is one method that is more effective than most others. Begin by laying the blanket flat with one corner directly above your head and the opposite corner directly below your feet. First, fold the corner at the bottom up over your feet. Then fold in the left and right corners. Lastly, fold the top corner up and over your head and face. This method provides multiple layers over the feet and torso as well as some insulation for the head and neck.

SKILL# 176
Three Ways to Carry Fire with Punky Wood

Punky wood (soft, dry decomposing wood) is an excellent material with which to carry a hot coal from a fire. I've had coals last in punky wood for as long as six hours.

Method 1) Fill a fire-resistant container with punky wood and bury some hot coals inside. Partially cap the top to limit the air supply.

Method 2) A smoldering ember can be carried on a big chunk of plain punky wood. Once smoldering, an ember in punky wood will continue to grow and consume the wood around it. If you're traveling short distances, an ember directly on a big piece of punky wood could be the best solution.

Method 3) A hot coal from the fire can be placed inside of punky wood that is wrapped in large chunks of bark. The bark can be wrapped around the wood to limit airflow and a handle can be tied for easy carry.

SKILL# 177
How to Eat Prickly Pear Cactus Pads

Prickly pear cactus can be found all throughout America's Southwest and even into Florida. There are even varieties in the plains of Nebraska. The pads from this cactus have been a staple in the diets of Central and South American cultures for decades and can be easily prepared in the wild.

Start by trimming or roasting off the various spines that cover the outside. This can be rather time consuming but make sure to remove all of the little hair-like ones that surround the larger spines. They can cause great irritation to the mouth and throat if eaten. The pads can then be sliced and boiled like green beans, added to stew or stir-fry, and even roasted right in the coals of a fire. The texture is very mucilaginous but the flavor is pleasing and mild. The red to purple fruits of the prickly pear are also a desert delicacy to the survivor and can be eaten raw after any spines are removed.

Prickly pear cactus pads with edible fruits.

SKILL# 178
Survival Cooking: The Controlled Cooking Spit Rotation

Spit-roasting wild game over hot coals or open flame is a popular method of survival cooking. No matter how much effort is taken to evenly distribute the weight of the meat on a cooking spit, one side always tends to be heavier and rotates to the underside of the rotisserie when left unattended. An easy method to prevent this is to carve each end of the rotisserie spit in a triangle shape to fit firmly and securely in the Y stake during three separate rotations. This simple method will prevent you from having to babysit the rotisserie stick and free up some extra time to handle other cooking prep chores.

Rotisserie spit carved in a triangular shape to prevent it from rotating.

SKILL# 179
Understanding Coconuts

Coconuts are an incredible source of drinking water on tropical islands that may be surrounded by salt or brackish water. However, a hydration diet of only coconut water can lead to diarrhea. One way to slow this process is to drink the water from the younger coconuts. They will be greener and growing in the upper clusters of the tree. The older, browner and coconuts hanging lower in the trees will contain more oils in the water, which can lead to diarrhea.

SKILL# 180
The Pinch Wall

In extreme cold it can be strategic to build a log wall fire reflector on the opposite side of the fire to bounce the heat back toward the sleeping area. This is best done with what is called the “pinched post” method. Four sturdy 36- to 48-inch tall flexible saplings about 1 inch in diameter are driven into the ground as shown in the accompanying photo. Long straight logs free of knots and branches are laid between them until the desired height is reached. Lastly, the tops of each sapling stake are pressed together to pinch the log stack and lashed together. This is a very quick and reliable method for stacking logs either for a wind block, shelter wall or fire reflector.

Pinched wall being used as a sidewall for a winter shelter.

SKILL# 181
How to Fell a Tree With an Ax

Start by cutting what appears to be an upside-down “7” notch on the side you want the tree to fall toward. Cut the notch halfway through the tree. Next cut another upside-down 7 on the exact opposite side of the tree a few inches above the first notch. As the second notch approaches the center of the tree, the hinge between the two notches will not be able to support the weight of the tree and it will fall in the direction of the first notch. As soon as the tree starts moving, immediately move a safe distance away from the direction the tree is falling so you won’t get hit if the trunk kicks back or bounces.

Photo of felling notches using an ax.

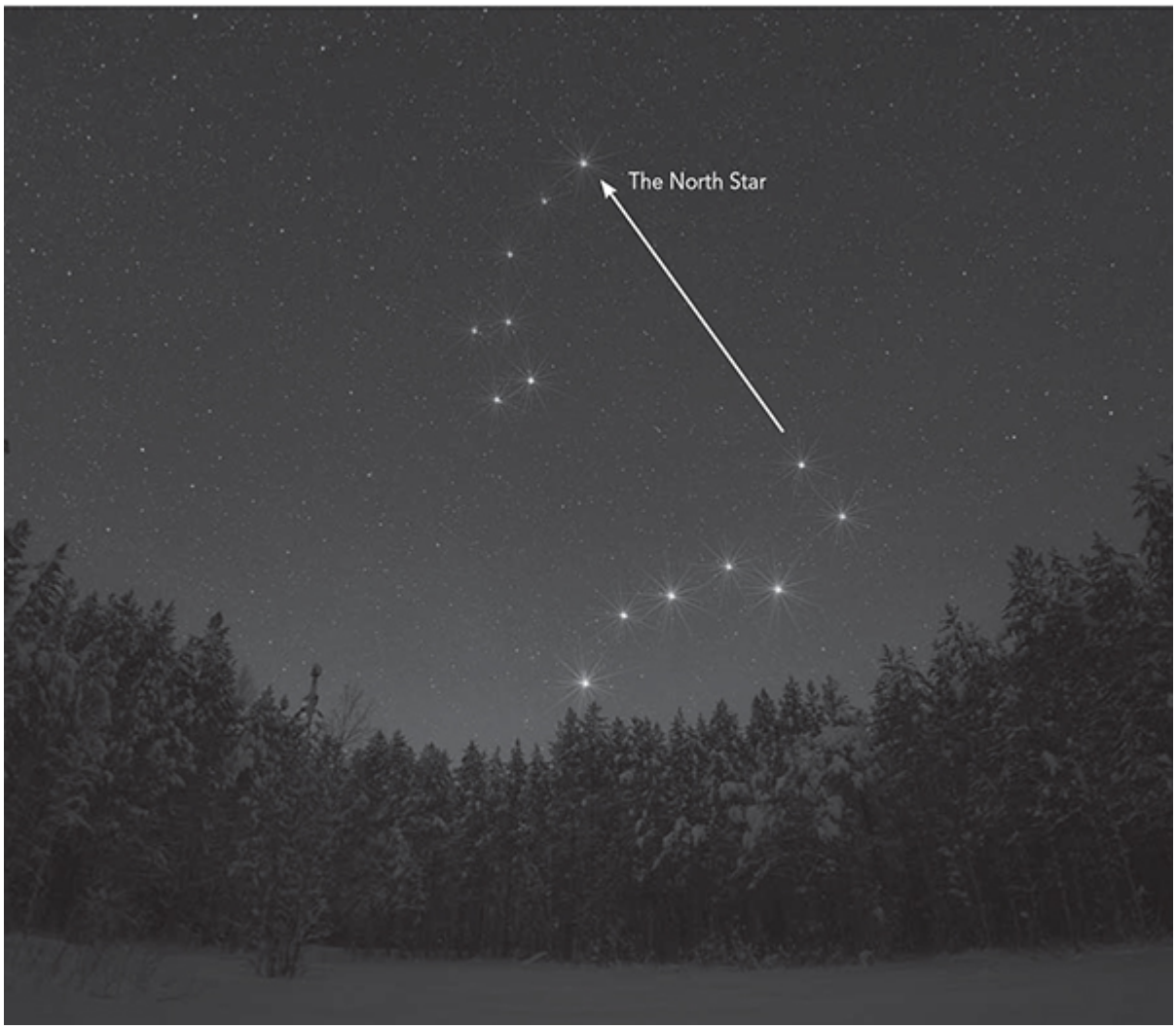
SKILL# 182
How to Fell a Tree With a Saw

Similar to felling with an ax, begin by cutting an upside down “7” on the side of the tree facing the direction you want the tree to fall. Cut this notch a quarter of the way through the tree. Next, on the opposite side of the tree, make a saw cut about 2 inches above the bottom of the first notch on the first side. Keep sawing until the wood hinge between the notch and the saw give way to the weight of the tree. As soon as the tree starts moving, immediately move a safe distance away from the direction the tree is falling so you won’t get hit if the trunk kicks back or bounces.

A saw is just as effective for felling large trees as an ax.

SKILL# 183
How to Locate the North Star

The North Star, also known as Polaris, is a very reliable indicator for improvised survival navigation. In the Northern Hemisphere the North Star is a reference point that aligns almost directly north. Contrary to popular belief, the North Star is not the brightest or the most easily identified star in the night sky. The best way to identify it is to first find the Big Dipper (Ursa Major). Then, connect a line between the two stars that make up the front of the dipper ladle, drawing from the bottom star to the top one. If you continue this line through the sky to the first bright star then you have found the North Star, which is also the star at the tip of the Little Dipper's handle.



The Big Dipper and Little Dipper – the North Star is at the tip of the Little Dipper’s handle.

SKILL# 184
How to Track Water

Finding water can be a little tricky in some environments. In general, there are three rules that can help you locate it. First, water always travels downhill. In your search for water, head downhill. Second, water leaves tracks in the earth's surface just like animals. You'll recognize them in the form of grooves such as erosion washouts, small streams or creek beds. The Grand Canyon is water's most famous groove. Lastly, water encourages vegetation. If there is water, there will be plants and trees. A green oasis in a drab desert canyon indicates the presence of water.

SKILL# 185
The Feedsack Raised Sleeping Cot

Feedsacks are one of the most durable bags I've ever seen – they have so many uses. On several occasions I have used them to make very comfortable sleeping cots. Two lightweight feedsacks make one very cozy sleeping platform. Begin by cutting open the bottom of each sack. Typically they are just sewn shut and you can cut and remove the thread very easily. Next, build two very large and sturdy tripods using staves that are at least 6 feet in length and 3 to 4 inches in diameter. Then, slide two sturdy, straight poles that are 2 feet longer than your body and 2 to 3 inches in diameter into the feed sacks, one on each side. Line the feedsacks end to end along the poles. Finally, place this stretcher-like cot onto the legs of each tripod. The poles will slide down the legs of the tripod until the feedsacks are pulled taught and it will stop. This will form a nice raised sleeping platform. Simply adjust the spread of the tripod legs to adjust the height of the feedsack cot.

Close-up of a cot resting on tripod ends.

A very comfortable sleeping cot made from two feedsacks.

SKILL# 186
Survival Foraging: Beech Nut

The beech tree is easily identified by its smooth silver bark. It beckons a survivor to carve his or her name in it, as many young lovers have done to thousands of beech trees across the globe. Its light tan, papery leaves stay on all winter. The edible seeds, beechnuts, ripen in the fall. They are very unique little nuts, as they are pyramidal in shape. Typically, two nuts come to one small, soft spine-covered husk. Beechnuts are edible raw or roasted – I've eaten hundreds in a 24-hour period while living in the woods with no ill effects. They also make excellent bait for virtually any forest animal.

Beechnuts ready for harvest.

SKILL# 187
The Trotline

The trotline is a passive method of fishing and very effective in water containing bottom feeders such as catfish, carp and turtles. A trotline is a long line of cord anchored to a tree or root with a small weight of some kind at the other end. Along the line are smaller lines with a baited hook or gorge at the end. The weight is thrown into the water with the lines falling in intervals along the bottom. Like all traps and snares, it's important to check trotlines daily. Trotlines can also be set with a single hook at the end, but they are more effective with multiple hooks along the same line.

SKILL# 188
Survival Cooking: Clay Baking Food

A variety of wild foods can be succulently prepared by wrapping in clay and baking directly in the hot coals of a fire. Clay baking is ancient technology and is an excellent method for cooking fish, birds and root vegetables. Scaling or skinning isn't necessary when cooking fish because the clay will peel the scales from the meat when it's cracked away. Fruits like wild apples or peaches also taste excellent when baked in clay. It's a foolproof cooking method and retains much of the food's natural juices for a very moist meal. Even if left in the coals of a fire longer than necessary, I've never had a clay-baked meal look, feel or taste overcooked.

SKILL# 189
Poisonous Plants: Jimson Weed

Jimson weed is most recognizable by its alien-looking fruit that is covered in spines and can be as big as a golf ball. It has five-pointed trumpet-shape blooms that look appetizing – but instead will send a desperate survivor into a heart-racing coma. **AVOID THESE PLANTS AT ALL COST.**

Jimson weed (Datura stramonium).

SKILL# 190
Four Natural Sunscreens

Protecting your skin from sunburn is more important than most people think. Severe sunburn on the face or neck can result in blisters and infection that can drastically affect one's ability to operate at peak performance. Four improvised natural sunscreens are as follows:

1. Mud: No rocket science here – just smear mud on the skin and move on.
2. Rock paint: Many rocks can be crushed and mixed with saliva or water to make a paint that can be used as a sunblock. Look for rocks that have a rust, white or blue hue, and that have a soft texture that can be crushed with larger rocks.
3. Aspen Powder: The white bark of the aspen tree is covered in a white powder that can be rubbed off with the hands and transferred to the face and neck.
4. Charcoal: Charcoal, while it will absorb heat because of the dark color, will also block harmful UV rays. Crush it with rocks and apply it to your skin. It can be mixed with animal fats, lip balm, evergreen resins or petroleum jelly to make a thicker paste for a long-lasting application.

The author experiments abrading rocks to see which rock’s powder, when mixed with saliva or water, will produce paint to be used as sunscreen.

SKILL# 191
How to Harden Wooden Spear Points With Fire

Wooden spear, gig or arrow points can be made more durable by hardening in fire. Twisting the wooden point over the flames of a fire removes moisture and draws the wood tighter, making it harder and more durable. This process also boils the water from the sap inside green wood, leaving just the minerals and crystalized resins behind. This also assists in increasing the hardness. In fact, polishing the point between firings with a smooth stone and driving the carbons from the fire into the surface of the wood will produce a point that will rival soft metals.

It's important to note that the wood tip should never be allowed to catch on fire or burn. It will blacken with carbon – but should not burn. Just let the flame of the fire lick the wood while you twist it around and around, then polish and repeat.

SKILL# 192
How to Make Char Cloth

Char cloth was often used by mountain men to start fires, and it can be ignited into a smoldering ember with just the tiny spark from flint and steel. It can also be made to quickly smolder with a solar lens or ferro rod. Char cloth is a 100 percent natural fiber material that has been charred, but not allowed to combust. This is accomplished by limiting the supply of oxygen when the cloth is charred.

Char cloth can be quickly made in a small metal container, such as an Altoids tin. A small hole should be punched into the container to allow the escape of volatile gases. Place cut pieces of cotton, or any natural fiber material, into the container and close the lid. Then, place the container onto the coals of a fire. You will see smoke and flaming volatile gases shooting from the tiny hole after about one minute. When this stops after a couple minutes, remove the tin from the heat with tongs and let it cool. The resulting charred material is char cloth. It is very fragile and susceptible to moisture so store it in a safe, watertight place.

In this instance, the ridgepole of a tarp tent was cut extra long so it could also serve as a pot hanger over the fire.

SKILL# 193
Canopy Shelters: The Pot Hanger Tarp Tent

A long pole can be lashed about waist high to a tree with a diagonal lashing to create a tarp ridgepole. The tip of the pole should extend over where the campfire will be placed out in front of the tent. The tarp is simply staked over the pole with the front corner being pulled tight with an evenk hitch on the grommet, and a tautline hitch on the tree. Lastly, a pot can be suspended over the fire to brew tea or cook a wild stew.

SKILL# 194
The Green V Fire Lay

A very simple method of cooking or boiling over a fire with pots and pans is to create a green V fire lay. This is simply a V-shape platform made from two fresh cut green logs. Hot coals can be shoveled between the logs and the pans or pots are rested across them. The green logs will survive the hot coals much longer than is needed to prepare a survival meal.

SKILL# 195
Charring Punky Wood Without a Metal Container

Punky wood also makes an excellent charred material. A field expedient method of charring punky wood for fire starting is to first dig a small hole in the ground next to the fire pit. Ignite and burn a fire in the hole to dry it out, which may take 15 minutes or so. While the fire is still burning in the hole, throw in several large chunks of punky wood and let them catch on fire and burn for a couple minutes. Finally, fill the hole back in with dry dirt or sand to stifle the fire and leave it until it cools. Once uncovered, the partially charred punky wood will be very responsive to a spark from flint and steel, a ferro rod or solar lens.

SKILL# 196
Improvised Char Rope Utilizing a Tinder Tube

Char rope can be made from 100 percent natural material rope such as cotton. My favorite char rope comes from the strands of a cotton mop head (three braided together). I've also made excellent char rope by three-strand braiding strips of an old cotton T-shirt.

A very functional way of making and using char rope is in combination with a small fire-resistant tube, often called a tinder tube. Utilizing any metal tube with an interior diameter slightly smaller than the rope and about 3 inches long, feed the rope through the tube by twisting and pushing. Once the rope extends out the other side, ignite it with a match or stick from the fire and let it burn until black – usually 30 seconds to one minute. Now, pull the burning rope back into the tube and cap with your finger or a plug of wood to snuff out the fire. The resulting charred end of rope can be readily ignited with a spark or magnifying glass. Feed the ember into a tinder bundle and blow into a flame, then retract the rope back into the tube and snuff out for later use. An improvised metal tube can be made by rolling a cut section of soda can just like in the photo. A tube made from elderberry, PVC pipe, bamboo or river cane will also work.

A tinder tube made from cotton rope and a rolled section of an aluminum can.

SKILL# 197
Moss as an Indicator of Direction

First of all, moss doesn't just grow on the north side of trees. Moss grows on any side of a tree that is moist and receives little direct sunlight, which is typically the north side because the sun is southward facing. In some dense, moist forests, moss will grow all around every tree in the forest and is absolutely no help in indicating direction. Rather than depend on moss as a natural indicator of direction, use it in combination with other natural indicators to paint a more clear and concise picture.

SKILL# 198
Survival Plants: Burdock (Arctium)

Burdock has a two-year life cycle. The first year it produces a large rosette of leaves, and in its second year it grows a tall flower stalk that produces burr-like seed pods resembling a small round ball covered in the hook side of Velcro. Burdock is a crop that's cultivated in some Asian countries for its rather large taproot, which can be harvested like a root vegetable from the first-year plants. The young leaves are also edible when prepared like spinach, and the leaf stems and young flower stalks can be peeled and eaten raw or cooked like green beans. Burdock leaves are among the largest in North America and can be used for roofing materials, eating surfaces and primitive aluminum foil for wrapping and baking meats and vegetables in the coals of a fire.

Second-year burdock plant. The roots are too woody to eat in its second year.

SKILL# 199
Killing, Skinning and Eating a Snake

All freshwater and land snakes are edible, even the venomous ones. If you are unsure whether a snake is venomous, then treat it as venomous. Snakes are caught the easiest with a long forked stick to pin the head to ground. A sturdy club can finish it off. The head should be severed at least 3 inches back from the base of the head. Heads of all venomous snakes should be buried to prevent accidental bites – yes, they can bite even when decapitated.

Work the skin away from the flesh until you can get a pinch on it and then simply pull it off like a sock. Most often the entrails will come out when skinned, but they are easy to remove if they don't. Snake can be boiled, fried or roasted. Cook well done.

SKILL# 200
How to Smudge a Shelter

Smudging is the act of creating a steady flow of smoke to either keep insects away or to drive them out of a shelter or sleeping area. It is a very effective primitive method of dealing with mosquitoes, ticks and chiggers. Many different dried plant leaves can be rolled tightly and lit like a cigar to smolder for up to an hour or longer depending on the size of the roll. Some of these include mullein, sage, sweet grass, cedar and mugwort.

Punky wood has always been my go-to smudge material. It is readily available in almost every environment and smolders with significant smoke. Smoldering chunks of punky wood can be placed in metal cans or in holes dug around a shelter to keep mosquitoes at bay. They can also be placed beneath a raised cot. To intensely smudge a shelter, dig a hole inside and fill the bottom with hot coals from the fire. Place punky wood or green leaves from cedar, pine or similar plants in the hole. The thick green smoke will drive insects away. Be very careful to clear around the hole so no flames or sparks set the shelter on fire.

SKILL# 201
How to Survive a Mountain Lion Attack

If a mountain lion attacks you, it probably sees you as dinner – almost all recorded mountain lion attacks have been predatory in nature. Assuming you survive the initial onslaught that will probably be directed toward the nape of your neck, it's best to fight back. Playing dead will not help because the lion plans on eating you anyway, and will most likely continue to do so if you lie motionless on the ground. Punch, claw, eye gouge, pull ears, strangle, stab and do anything you can to hurt the big cat. They don't like prey that fight back and you have a good chance of giving it second thoughts.

SKILL# 202
Make an Acorn Shell Survival Whistle

Acorns are the seeds of the oak tree. The basket-like shell that cradles the acorn can be used as an emergency survival whistle. Find an acorn shell that is in good shape without cracks or holes. The opening should ideally be the size of a penny or larger. Hold the acorn shell as shown in the photo between your thumbs and forefingers, leaving a small V-shaped opening. Bring your thumb knuckles up and press them between your lips and blow hard into the opening. Minor adjustments might be required, but when you get it you'll know it.

Here’s the thumb position necessary for an acorn shell whistle.

SKILL# 203
Predicting Weather: Sun or Moon Halo

A halo ring around the sun or moon is a good indicator that rain is on the way. Halos around the sun or moon are caused by light reflecting off of ice crystals that form as a result of cirrus clouds. Cirrus clouds are one of the first clouds to appear ahead of a storm.

SKILL# 204
Survival Plants: Lambsquarters (Chenopodium album)

Lambsquarters is one of my favorite wild greens and is as good as any store-bought green. It's also called goosefoot because of the shape of the leaves, and wild spinach because of the taste. It's best prepared like spinach, steamed in a little bit of hot water. An identifying feature of lambsquarters is the white, dusty underside of the leaves, which has a gritty texture. If there are green things growing you're likely to find lambsquarters nearby. It loves open areas, yards and transitional areas between meadows and forests. Pick only the young leaves from the tops of older plants. The mature black seeds can be winnowed and ground into tasty flour or boiled like an oatmeal gruel.

Lambsquarters is also called wild spinach.

SKILL# 205
Survival Hunting: The Rabbit Stick

The rabbit stick is a very simple weapon of opportunity. It is a throwing stick that is kept at the ready while foraging and scouting just in case an opportunity to take wild game presents itself. The typical rabbit stick is about the length from your armpit to fingertip and between 1 and 2 inches in diameter. I've seen and used curved and straight ones, and don't have a preference either way. Rabbit sticks can be used to throw at a huge variety of wild game including birds – both flying and ground dwelling, rabbits, squirrels, chipmunks, possums, groundhogs, prairie dogs, raccoons and even fish. It can also be used to club wild game caught in traps or snares. A rabbit stick should be thrown sidearm versus overhand to increase your chances of hitting the target. It also can serve as a baton, digging stick and fire poker, among other things.

SKILL# 206
How to Avoid Getting Struck by Lightning

Hundreds of people are struck by lightning each and every year worldwide. Many of these occur in and around water (water is an excellent conductor of electricity). Lightning is a very real threat to a survivor who finds themself outside during a thunder or lightning storm. It is true that lightning typically strikes the tallest object in an area. If retreating to the inside of a modern shelter or vehicle is an option, these are the best choice. If not, you should put distance between yourself and the tallest objects around you. A good place is a low area or depression surrounded by scrub brush. Do not retreat to an open area and do not take shelter under large trees – find a middle ground. If lightning strikes the ground the electrical current will often travel up through anything nearby. The best position to reduce contact with the ground is to crouch down and wrap your arms around your head with only your feet on the ground.

SKILL# 207
Shoreline Duck Snare

If you're familiar with a shoreline where waterfowl frequents, this snare is sure to put a fattened goose or duck on the roasting spit. Start by driving a strong 1-inch diameter by 36-inch long stake at least 12 inches into the ground. From the base of this stake tie 10 to 15 nooses that lay flat on the ground anywhere from 6 inches to 3 feet around the perimeter of the stake. Each noose opening should be at least 12 inches in diameter. Lastly, sprinkle green vegetation, corn, grass, fry bread or seeds around the stake and on the snare nooses. Ducks are notorious for shuffling their feet along the ground rather than taking highly defined steps. It is very probable that a noose or two will tighten around the ankle of at least one duck while feeding.

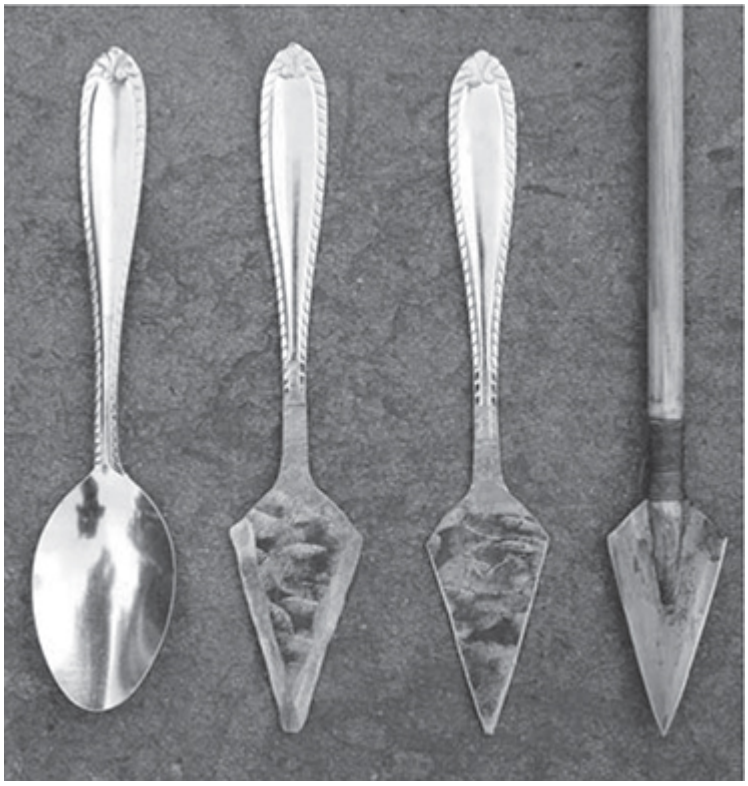
Nooses tied to a stake with the goal of snaring ducks’ feet.

SKILL# 208
Survival Foraging: Freshwater Mussels

Freshwater mussels are edible and can be quite easy to harvest. Look for discarded shells on the shoreline from raccoons, possums and muskrats as an indicator if the body of water contains mussels. If the water is too cold to get in, clams observed from the shoreline can be easily caught with a long thin branch. Look for just the tips of their shells sticking out of the sand and mud. Place the tip of the branch into the slightly open shell valve and it will close tight, allowing you to pull it up on shore. Freshwater mussels should be boiled, steamed or fried until the shells open.

SKILL# 209
Make a Hunting Arrowhead from a Spoon

As seen in the photo series, a mean-looking arrow broadhead can be improvised from a spoon, utilizing just a rock and file as tools. The rock is used to flatten the spoon and the file to shape and sharpen. Necessity is the mother of invention. This skill from my friends at www.kyrivertradingco.com [inactive].



Several stages are shown from spoon to broadhead arrow point.

SKILL# 210
Survival Knots: Square Lashing

The square lashing is designed to lash cross poles together in a perpendicular fashion. It can be used to build camp furniture, bridges, towers and to secure a canopy shelter or lean-to ridge poles between two trees. It is an incrediblly stable and secure lashing. Watch video tutorial #13 for complete instructions at: www.creekstewart.com/365-book-videos

SKILL# 211
Make a Quad Pod Table

A makeshift survival camp can be made much more comfortable and efficient with the manufacture of a few simple pieces of camp furniture. One such piece is the quad pod table. Start by erecting a quad pod using the tripod lashing, except just add in another pole. Next, use the square lashing to attach two horizontal poles – one on each side of the standing quad pod. Once these are lashed, place sticks or boards across them to form a table surface for preparing food or other chores. This contraption can serve for many functions including as a drying rack for clothing or jerky, and a smoking rack for fish.

A quad pod table is easy to construct and very useful for a wilderness camp.

SKILL# 212
Canopy Shelters: The Ridgepole Lean-To

One of the best canopy shelters available is the ridgepole lean-to. This shelter design starts by lashing a solid, nonflexible ridgepole between two trees using the square lashing at each intersection. A tarp is then drawn over the pole to provide a front awning and a lean-to back that stretches down to the ground behind the sleeping area. The front guylines on the tarp are anchored to the grommets using the evenk hitch and tensioned with the tautline hitch around the stakes.

A quickly made lean-to canopy shelter uses a rigid pole lashed between two trees.

SKILL# 213
The Long-Term Camp Latrine

A dedicated latrine is a necessity, especially when surviving long term with several individuals at the same camp. The latrine should be a rectangular-shape ditch dug in the ground that is 12 inches across by 36 inches deep. The excavated dirt should be piled at least 18 inches to the left or right of the latrine ditch. A ditch this size can easily be straddled for No. 1 and No. 2. All No. 2s should be covered with a shovel full of dirt. No. 1 requires no cover. Once the ditch is filled back to level with dirt, then a new ditch should be dug. All latrines should be at least 100 yards from the group's water source.

SKILL# 214
The Green Grate Cooking Platform

A log house-style platform made from fresh cut green limbs or saplings makes an excellent and easy cooking rest for pots and pans. The green limbs will last through several fires before needing to be replaced. Stack the limbs in the style of a log house until the desired height is reached. Pots, pans or skewers of meat can be rested across the two sides for cooking.

SKILL# 215
Survival Knots: Diagonal Lashing

The diagonal lashing is used to lash cross poles that are laid upon each other diagonally, versus perpendicular or parallel. In many forms of building such as with towers and camp furniture a diagonal crossbar is used to add support and rigidity to a structure. Diagonal lashings are used for this support beam. Unlike all other lashings, the diagonal lashing starts with a timber hitch around the center cross section. The rope is then wrapped around the cross section three times in line with the timber hitch. Next, the rope is wrapped three times around the other diagonal cross, overlapping the first wrap. Finally, the rope should be frapped around the middle between the poles two times and anchored with a clove hitch. Watch video tutorial #14 for complete instructions at:
www.creekstewart.com/365-book-videos

SKILL# 216
Make a Survival Raft

Few people have ever actually built a survival raft for practice. The best method I've used is to lash a series of large driftwood sections parallel to each other using green limbs that are 2 to 3 inches in diameter. All perpendicular lashings are square lashings, and the diagonal crossbeam is lashed using the diagonal lashing. The diagonal crossbeam is critical for stability and will stop the raft from twisting closed like an accordion in unstable waters. Evergreen boughs and branches can be placed on top of the raft to provide a more comfortable platform and to offer a storage spot for packs or tools.

Log arrangement for a driftwood raft – the diagonal is critical for support.

SKILL# 217
Where to Find Dry Kindling During or After a Rainstorm

The wise woodsman knows there is always dry kindling available. Dead standing trees are the best source for dry kindling during and after a pouring rain. A section can be cut from this timber and then split to access the dry wood in the middle. The exterior inch or so may be saturated with rain, but the interior will be bone dry year-round, no matter what the weather conditions are. Simply split the kindling you need from the dry interior and wait to burn any wet wood until the fire has been stabilized.

SKILL# 218
The Minnow Seine

When I was just a boy I learned how effective a minnow seine can be in securing handfuls of live minnows for bait (or survival eating) from my grandfather in the creeks of Kentucky. Grandpa would hold the 4-foot wide by 4-foot long net with a pole on each side at an angle in the water. He would then send me upstream to drive the minnows down toward him, as he would slowly walk forward. When we met I would lift the bottom of the net to reveal a smorgasbord of freshwater creatures including crayfish, insects, minnows and an occasional water snake. We'd then take what we needed for fishing bait and head to the pond. I have always included a seine in my long-term survival pack (the Noncon Pack) because of this.

An improvised minnow seine can be made from a variety of materials, including orange sacks, T-shirts, feed sacks and even garbage bags with tons of little holes punched through them. It's important to keep the bottom of the net as close to the creek bottom as possible. On a side note, minnows less than 2 inches long can be cooked and eaten whole.

SKILL# 219
How to Gut a Crayfish

Crayfish are easy to catch and very easy on the palate when it comes to survival fare. They literally taste like lobster. They are best boiled but can also be roasted on a stick. Either way, the mud vein should be removed before cooking. This is accomplished by pulling on the center tail scale. Pull slightly to the left, then slightly to the right to loosen it, then pull straight backward, and along with it will come the 2- to 3-inch foul tasting intestine. Everything else inside is edible.

Pulling the center tail scale out will remove the mud vein from crayfish.

SKILL# 220
A Must-Have Item in Your Bug Out Bag

A simple metal file is a tool that is impossible to improvise in the field. Some rocks will abrade metal and wood, but it's a lot of work and much less effective. A file can be used for countless tasks including sharpening, prying, digging and improvising other tools. A quick modification to make a file more useful is to file and sharpen the flat end to a chisel point for working wood or prying open window and door jams.

SKILL# 221
Symptoms of Rabies in Wild Animals

If a wild animal is easily approached, it is a definite red flag. All wild animals are afraid of humans unless they have become accustomed to being fed. Rabies is a possible reason why a wild animal may be exhibiting odd or unusual behavior. A rabid animal will very often appear confused and disoriented. I'll never forget when I was a kid watching a raccoon stagger right toward me in the woods in broad daylight. I knew even then that it was exhibiting extremely odd behavior and luckily I stayed clear of it. It wasn't until years later that I realized it was either extremely ill or infected with rabies, most likely the latter. NEVER kill or eat an animal suspected to have rabies. Small carnivores are usually the primary suspects and include, but are not limited to, raccoons, foxes, skunks and coyotes.

SKILL# 222
Survival Knots: The Square Knot

Everyone should know how to tie the square knot. Although not considered a secure knot, it's a quick and easy knot to use when bundling objects and holds fairly well. It's basically two overhand knots tied back to back with the pattern: right over left, left over right. Both free ends of the rope should end up on the same side. When they end up on opposite sides it is called a thief knot, which isn't used for anything really. Watch video tutorial #15 for complete instructions at: www.creekstewart.com/365-book-videos

SKILL# 223
Survival Knots: The Sheet Bend

The sheet bend is a more reliable version of the square knot. It also works best when joining two knots of a different size or material. Everything is the same as the square knot except that the smaller diameter rope passes under itself, forming a more secure grip. Watch video tutorial #16 for complete instructions at:
www.creekstewart.com/365-book-videos

SKILL# 224
Identifying Venomous Snakes: Copperhead (Agkistrodon contortrix)

Copperheads, a venomous pit viper, reside from America's Northeast all the way to West Texas. They are 2 to 3 feet in length and have a reddish-brown copper-color head. Their pattern is very unique with reddish-brown sideways hourglass shaped spots along the body. The middle of the hourglass shape is along the back, with the wider ends along the sides of the snakes. Although fatalities from copperhead bites are very rare, it could certainly be a death sentence in a survival scenario if illness prevents the pursuit of water, shelter or food. Copperheads are edible and the head should be removed at least 3 inches back from the base of the skull and buried to prevent accidental bites.

The copperhead snake – notice the hourglass-shaped pattern on its body.

SKILL# 225
Poisonous Plants: Poison Ivy (Toxicodendron radicans)

If not immune, contact with poison ivy can be bad news in the outdoors – especially in a survival scenario. The oil on the leaves of poison ivy, called urushiol, is what causes the red, itchy and blistering rash. Poison ivy can grow in vine or ground form and is easily identified by its compound leaf with three leaflets and clusters of green to whitish berries. Poison ivy has led to a popular woodsman phrase: “Leaves of three, let it be.”

Poison ivy’s infamous three-leaf pattern.

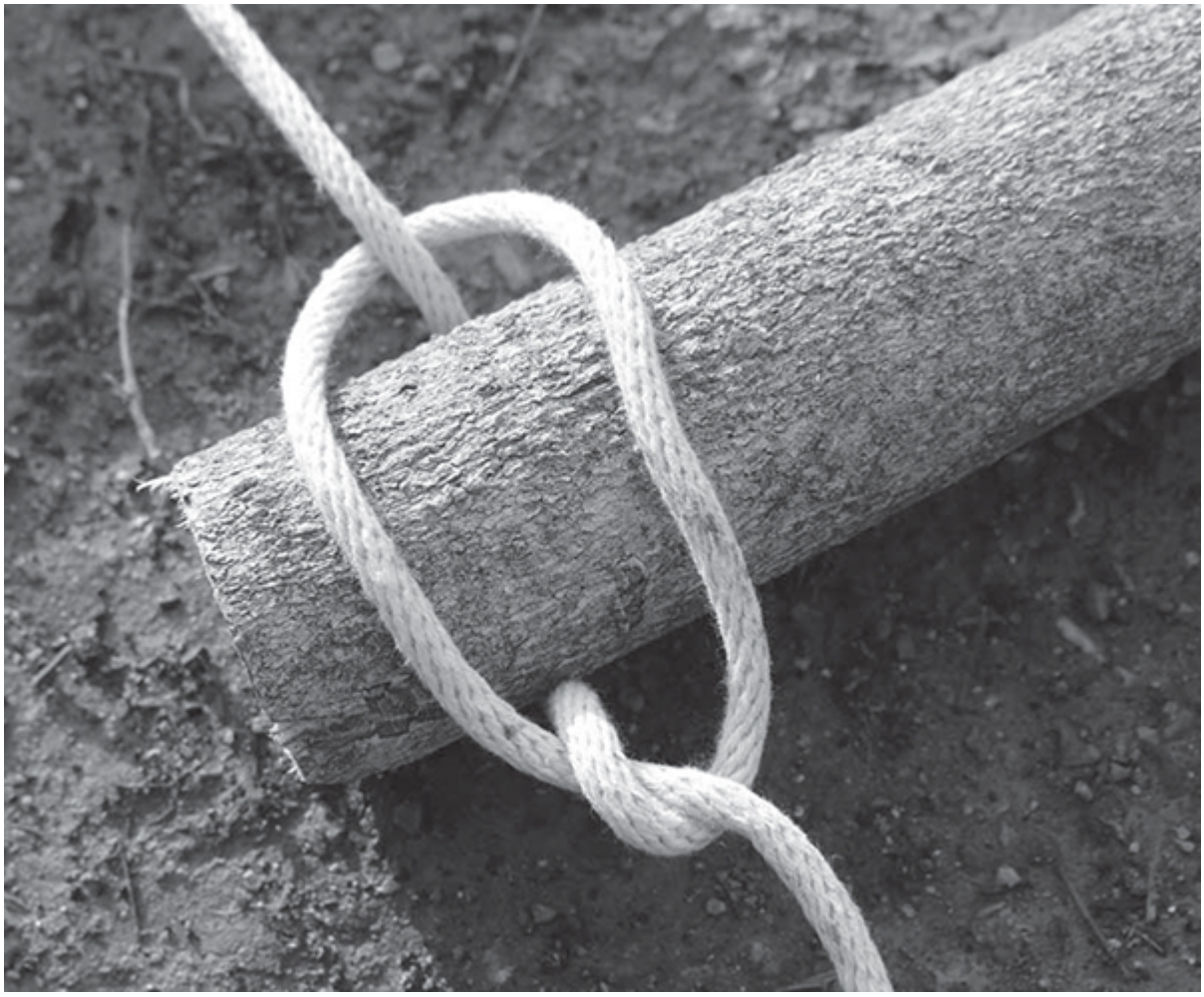
SKILL# 226
Survival Plants: Jewelweed (Impatiens capensis)

Jewelweed gets its name from the jewel-like silver appearance when the leaves are submerged under water. Jewelweed leaves and gel (the gooey fluid in its stalks) contain anti-inflammatory properties and have been used as an active ingredient to treat hemorrhoids, dermatitis, poison ivy, bee stings, rashes and the effects of stinging nettle. It is a great natural remedy to treat a variety of skin irritations in the wild.

Trumpet-like orange blossoms mark a patch of jewelweed in bloom.

SKILL# 227
How to Make a Rope and Stick Ladder

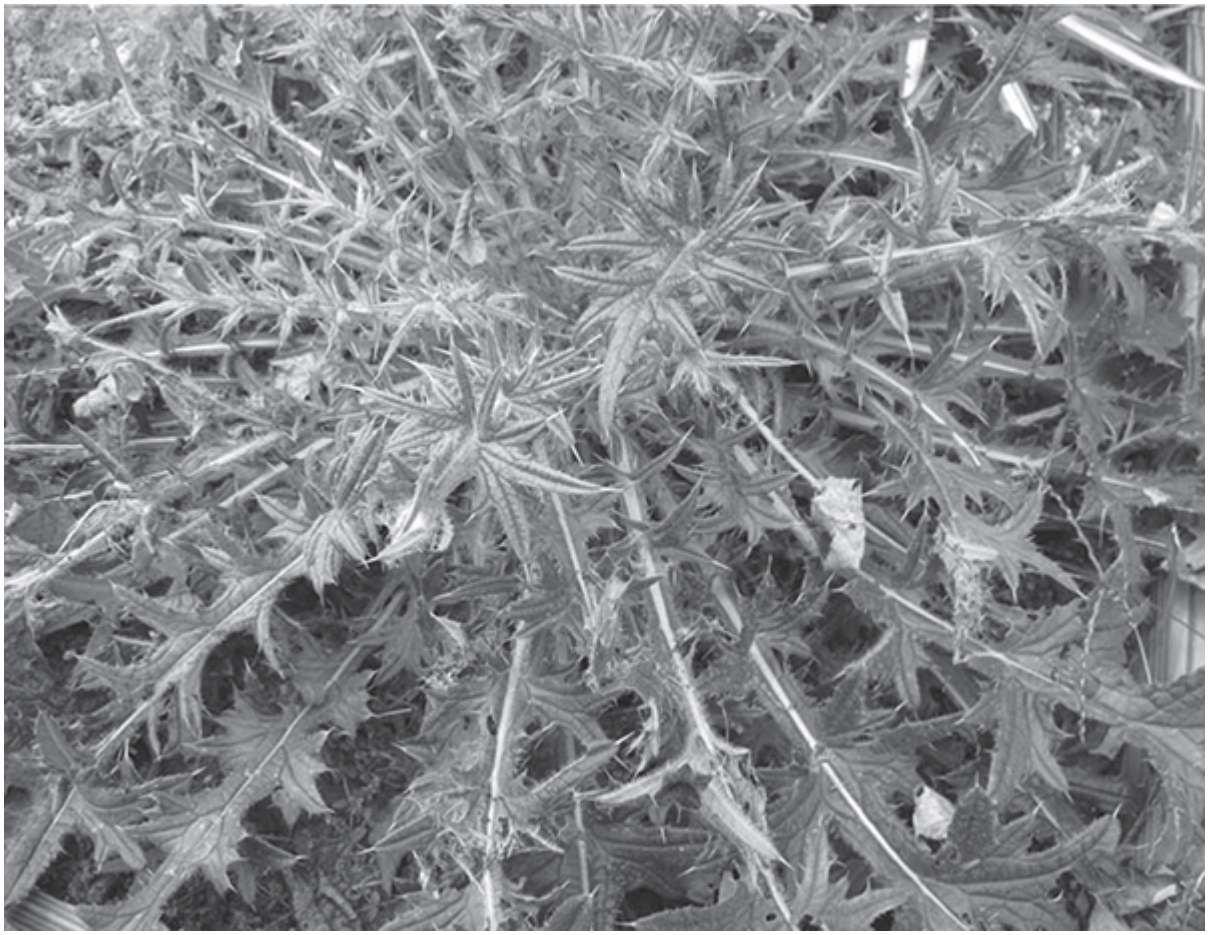
A very efficient rope ladder can be made for accessing raised shelters and ascending or descending rugged terrain. The only items necessary for construction are a rope or two and several strong limbs that can hold the weight of the user. As seen in the accompanying photo, a simple overhand knot holds the stick step in place. The placement of the stick through the knot is very important. Each side of the step should use the same knot configuration.



An example of the overhand knot pattern for making a useful rope and stick ladder.

SKILL# 228
Survival Plants: Bull Thistle (Cirsium vulgare)

Bull thistles are ferocious-looking plants covered in sharp spines and hairs. However, this all protects something very valuable to a survivor in spring and summer months –WATER. The thick lush stalks of the second year (it's a bi-annual) plant can be peeled and eaten like celery. It's best to leave them standing and just work your way around the stalk with a knife until it's all cleared of leaves and thorns – then cut the stalk into sections. The root of the first-year plant (just a basal rosette of thorny leaves) can be cooked like a potato and is quite nutritious. This useful thistle is easily identified during late summer by its purple bloom that resembles an old-fashioned shaving brush.



The first-year rosette of a bull thistle.

SKILL# 229
1-2-3-FIRE

I've always said that if you can count to 10 you can build a fire. Each number from one to 10 references the size of kindling to place on the fire. Zero is the tinder bundle. One is the equivalent of toothpick-size sticks. Two references sticks that are approximately the size of Q-tips. Three is pencil size, and so on, all the way to 10. Many fire-starting rookies will go from zero to 20, skipping the all-important initial stages of kindling. After igniting the tinder bundle, one should place two fistfuls each of kindling from one to 10, letting each fully ignite before placing the other.

SKILL# 230
Baton Splitting

When a larger splitting tool such as an ax or machete is not available, one can split wood using just a knife and a solid stick. Start by placing the knife at a 90-degree angle, blade down, on top of the upright wood to be split. The knife can then be batoned lengthwise through the stock using a solid stick (called a baton) about 2 inches in diameter. Batoning allows for very precise and calculated splits to be made. Strike the spine of the knife with the baton, driving it downward like a sharp wedge and splitting the stock to the desired width.

Baton position for splitting wood.

SKILL# 231
Make a One-Stick Fire

There is no exercise that forces proper fire counting and building like the one-stick fire. A one-stick fire is a fire built entirely from one solid, dry stick that is approximately 12 inches long by 3 inches in diameter. The user must split or baton the stick into the fire numbers one through five. This prepared kindling must then be lit only with one match; this method of fire starting emphasizes the most important fire skill of all – preparation!

Here’s one stick (left) split into smaller kindling (right) to make a one-stick fire.

SKILL# 232
The Lean-To Fire Lay

My go-to survival fire lay is without question the lean-to. The lean-to fire lay starts with a section of wood that is 24 inches in length and 3 to 6 inches in diameter. If the wind is blowing very hard I place this log on the ground perpendicular to the wind to act as a wind block. If the wind is gently blowing I oftentimes place this log parallel to the wind direction to take advantage of the gentle breeze to provide the fire with oxygen. This “backer” log acts as a rest to place kindling in a lean-to fashion. The lean-to style provides a sheltered area for the tinder bundle, a protected area to strike a match or ferro rod, and also allows for proper ventilation and oxygen to reach the flames.

SKILL# 233
Pine Pitch Knots

The knots and branch joints of pine trees are incredible fire-starting resources. These areas, often called fatwood or pitchwood, are typically saturated with flammable pine sap. This is the case even in pine trees that have fallen and rotted on the ground. I've dug pitch knots and joints from completely decomposed pine trees that have been rotting on the ground for years. When small, thin slivers are shaved from this fatwood, a fire can be ignited with just the sparks from a ferro rod. Once lit, pitchwood burns very strong – even in high winds and wet conditions.

SKILL# 234
Survival Knots: The Round Lashing

The round lashing is most often used when attaching two limbs or poles together. Two round lashings a foot or so apart can be used to attach one pole to another for extended length. It is the most basic of lashings. It starts with a clove hitch around both poles. The rope is then wrapped a number of times – typically five to 10 – and then it ends with a clove hitch around both poles again.

SKILL# 235
Making a Pine Joint Torch

The large, dead low-hanging branches of pine trees make excellent torches. When the branch dies, the sap from the branch settles in the lower part of the branch that connects to the tree. It's not uncommon for the bottom 6 to 8 inches of the branch to be saturated with pine resin. When sawn off at the joint and split four ways, these branches make excellent torches that can burn for as long as an hour or more. Pressing a small rock into the split end to spread the tines apart helps the torch to light and burn brighter. Just remember that not all low-hanging dead branches contain pitch.

The author carrying a split-tip pine pitch torch.

SKILL# 236
Survival Plants: Curly Dock (Rumex crispus)

Curly dock, also called yellow dock, forms an impressive round, bushy display of long, curly edged leaves in spring and grows a tall seed stalk as summer progresses. The young leaves toward the center of the plant are best prepared like spinach. The older leaves are too bitter and too tough to enjoy – but are edible nonetheless. The plant's leaves can also be used as primitive tinfoil to wrap and cook food in, but they will impart a slightly bitter flavor to the food. Curly dock reigns supreme in disturbed areas after logging or a storm opens up the treetop canopy, though you'll also find it in transition areas between meadows and forests.

Curly dock growing at the edge of a cultivated garden.

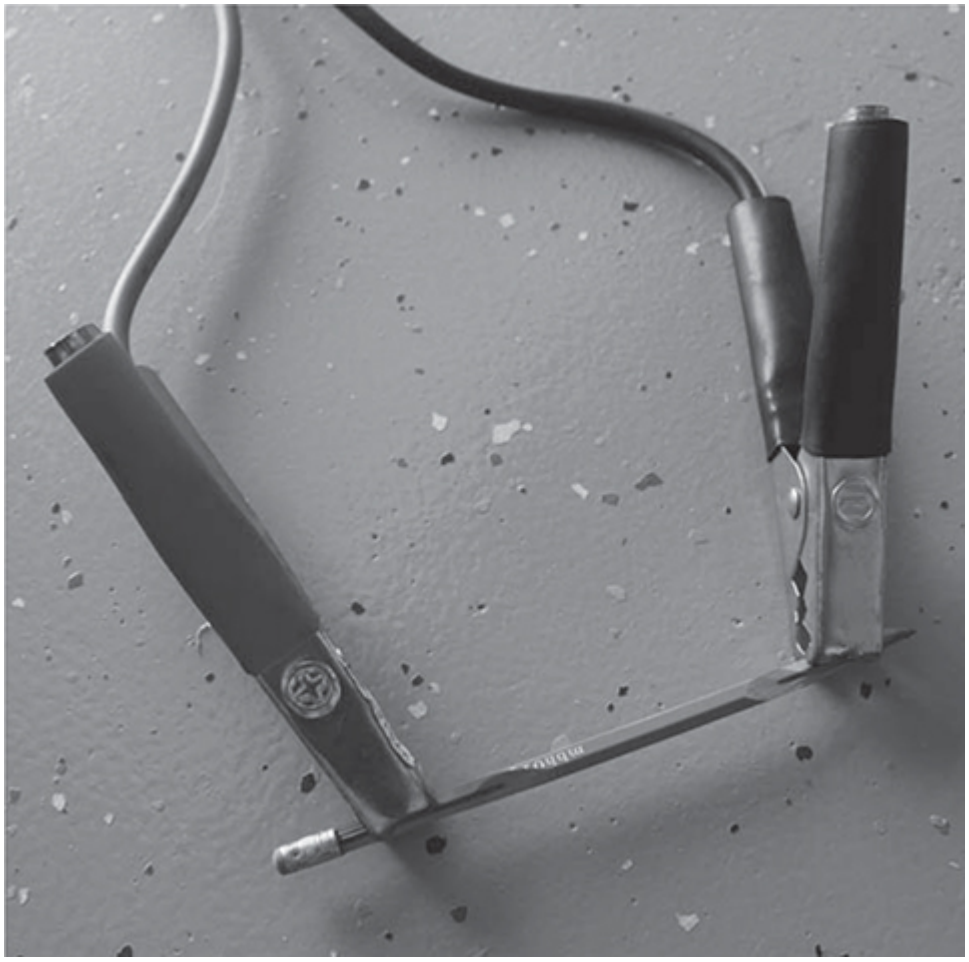
SKILL# 237
Make a Cooking Crane

Using the round lashing, a very unique cooking crane can be fashioned with a carefully selected large Y stick and a smaller forked stick. The forked stick should be lashed to the top fork of the larger Y stick using the round lashing – use two for more security. The crane can then be hooked on a post staked upright using the forked stick, and supported horizontal using the branch with a natural Y – this piece can also be lashed on if you can't find one with this natural configuration. This type of cooking crane can be rotated away from the fire and adjusted in height to control cooking temperatures. A pot can easily be hung from the long end of the Y stick.

Here’s a unique and adjustable cooking crane using the round lashing.

SKILL# 238
Stranded Car Survival: Car Battery and Pencil Fire Starter

Using a battery power source is a very popular fire-starting method. There are many different ways to do it using many different power sources. This one involves using a car battery, jumper cables, and a regular No. 2 pencil. Start by shaving down an area to expose the lead on each end of the pencil, about as wide as the jumper cable alligator clamps. Then clamp on the positive and negative jumper cable clamps, one on each shaved area. Be sure the clamps are touching the pencil lead. Place the clamps and pencil on top of your tinder bundle. Now connect the other end of the jumper cables to the vehicle's battery. The electricity from the cables will turn the pencil lead into a red-hot ember and the wooden pencil will erupt into flame in about two minutes time. Use the flame to ignite your tinder bundle. Remember to disconnect the jumper cables from the battery as soon as your fire is going.



Jumper cables attached to a pencil shaved down to the lead at each end.

SKILL# 239
Survival Plants: Yellow Wood Sorrel (Oxalis)

Yellow wood sorrel looks like a classic shamrock. This was the first wild edible I can remember eating, and I ate it by the handful. It has a sour, tart flavor that is very refreshing. The leaves, stems, flower and buds are all edible. It adds great flavor when mixed in a wild salad, but is best used to stuff fish or garnish frog legs because of its lemon-like flavor. It's often confused for clover, which is also edible.

It's reported that oxalic acid (which is responsible for the sour flavor) can make your stomach hurt and should be eaten in moderation. I doubt, however, you'd ever want to eat that much anyway as it's best in small flavor-rich doses. I would guess that most people in North America are within 50 feet of some variety of wood sorrel at any given moment from May to November.

The shamrock leaf pattern of tart-tasting yellow wood sorrel.

SKILL# 240
Make a Bamboo Canteen

Bamboo stalks are divided into sections by nodes. The areas in between the nodes are hollow and can be fashioned into a variety of vessels, including a very functional survival canteen. Ironically, in the jungle, fresh drinking water can also be harvested from these hollow internodal spaces. Cut a section of bamboo below and above two adjacent nodes to create a small enclosed container. Drill a hole through one of the nodes and carve a wooden stopper to act as a plug. A timber hitch knot with an additional half hitch for stability makes the perfect attachment to a belt or pack tether.

Section of hollow bamboo used as a canteen with a carved wooden stopper.

SKILL# 241
Make Urban Newspaper Mukluks

The Mukluk is a boot worn by primitive Arctic cultures in extreme cold and snowy conditions. They are typically made from multiple layers of fur and reindeer or seal hides. The large, loose fitting construction allows the foot to move freely and breathe while being surrounded by plenty of air space. Modern urban mukluks can be fashioned by wrapping 20 or more sheets of newspaper loosely around the foot and securing it all loosely with tape. Additional layers of scrap fabric, car seat material, jackets or carpeting can further increase comfort, insulation and weatherproofing. A mukluk-style boot performs best in frigid temperatures when snow is in powder form and not slushy or wet.

SKILL# 242
Carry Fire with a Punk Horn

Many records indicate that primitive cultures carried fire in what is referred to as a fire horn. A bison horn would be filled with punky wood and a hot coal from the fire was buried inside it. The punky wood and limited air supply allowed the coal to smolder and grow for many hours. Capping the top of the horn to further limit the air supply could slow the burn if necessary. Additional punk could also be added to lengthen the burn time. Then an ember from the horn could be placed into a tinder bundle and blown into flame when fire was needed. This same technique can easily be recreated with any fire-resistant container such as a metal pop can, glass jar or animal skull.

SKILL# 243
Survival Knots: Timber Hitch

The timber hitch is a knot used to drag or lift a heavy log or pole. It works well when tied to any type of pole-shaped object and is very easy to untie even after the rope has been put under extreme stress. The working end of the rope simply wraps around the object and then loops around itself and then wraps back around itself several times. Watch video tutorial #17 for complete instructions at: www.creekstewart.com/365-book-videos

SKILL# 244
Survival Plants: Reindeer Moss

Reindeer moss is a very carbohydrate-rich food source of caribou in the Arctic North. It can be found in all types of environments from the Eastern Woodlands to the Boreal Forest of Canada. It is well adapted to the cold and is very prominent in the northwoods. Although not the most appetizing, reindeer moss exists at a time of year when many other plants do not – winter. Due to its high acid content, it should be boiled in several changes of water before eating. However, once properly processed, it can be a good source of carbohydrate energy when little else exists.

Reindeer moss.

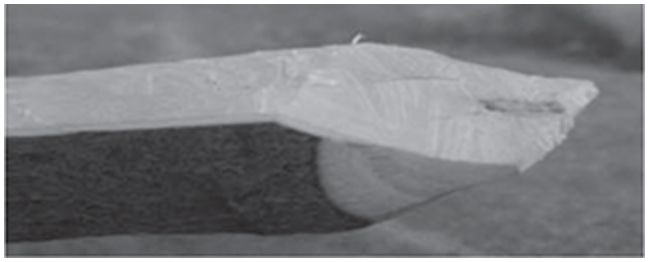
SKILL# 245
Aiming an Improvised Signal Mirror

Signal mirrors are proven survival signal tools that can be seen for miles by a rescue crew. Improvised signal mirrors can be made from car visor mirrors, a camera lens, cell phones and even aluminum foil. Aiming an improvised signal mirror requires a little finesse. Simply hold up your peace sign with your fingers and place your target (the rescue crew) in between your fingers. Then, flash the sun's reflection across your fingers. You can see the reflection on your fingers, which ensures you are also flashing your intended target.

Reflecting sun through an improvised finger sight.

SKILL# 246
Carving Notches: The Chisel Tip

A very useful carving skill is perfecting the chisel tip. The chiseled tip is used in shelter construction, camp craft and primitive traps such as the figure 4 deadfall. Depending on the function, the chisel shape can be made offset or centered. For most functions, it's important to square off the end of the chisel to reduce splitting and breaking. Only solid woods that are free of rot and punk will perform well with a chisel tip.



A close-up of the useful chisel tip.

SKILL# 247
Make a Chisel Tip Camp Shovel

Digging without a shovel can be quite a chore, and digging a hole with a knife or ax will dull the blade quicker than anything else I know. An improvised digging tool can be made quickly by carving an offset chisel tip on the end of a sturdy 6-foot long pole. You'll be impressed by how quickly a hole can be dug by slamming the pole into the ground and prying up the earth.

The author uses a chisel tip shovel to dig a latrine ditch.

SKILL# 248
Survival Trapping: The Figure 4 Deadfall

The figure 4 deadfall is a primitive trap that uses three carved sticks and a deadfall weight. When triggered, the weight falls and crushes the animal. The three trigger sticks are carved in such a way that they can be arranged in the shape of a "4," which forms a sensitive trigger system that is held in place by the pressure of the deadfall. The carving notches used are the No. 7 notch and the chisel tip notch. Use only strong, dry seasoned wood for the trigger sticks, and always attach the bait on the bait stick BEFORE setting the trap. A figure 4 deadfall survival skills kit is available at www.creekstewart.com/skills-kits/.

Close-up of the figure 4 deadfall trigger sticks.

SKILL# 249
Survival Trapping: The Double Log Figure 4 Deadfall

Finding a nice flat rock to set a traditional figure 4 deadfall trap isn't always easy. In fact, it can be quite difficult to find a rock that will work. An easier, and more effective in my personal experience, solution is to use two logs to form the hammer and anvil effect of the deadfall. The top log shown in the photo is the crushing weight and the bottom log provides a solid crushing surface. It's important to note the two stakes driven into the ground on each side of the logs. These stakes provide a brace for the top log so it doesn't wobble. This feature makes the trap not only more effective – but easier to set as well.

The figure 4 deadfall set between two large logs.

SKILL# 250
Use Pine Roots for Cordage

During the winter months when plant and bark cordage can be hard to find and process, the rootlets of pine trees make excellent primitive cord that can be used for anything from shelter lashings to fashioning primitive fish hooks. Just inches under the needle bed of most all species of pine runs a network of small, flexible surface-level rootlets. These can be pulled up from the ground in lengths of more than 8 feet. Large diameter roots of ¼ to ½ inch can be split in half or in fourths for smaller cordage needs. Rootlets from the following trees also work quite well: tamarack, spruce, cedar and fir.

SKILL# 251
Make a Pine Root Stripper

Pine rootlets used for cordage are cleaner, easier to work with and more pliable when the outer skin is stripped away soon after pulling them from the ground. This can be quickly and easily done using a makeshift stripper tool. Simply cut a thin V-shape notch in the end of a thinned 1-inch diameter stick. The root can then be pulled through and across this notch to remove the outer bark. A couple passes on each side makes quick work of the job. Larger strippers may be required for larger roots.

To strip bark from pine rootlets used for cordage, the author utilizes an improvised notched stick like this.

SKILL# 252
A Tip for Splitting Pine Rootlets

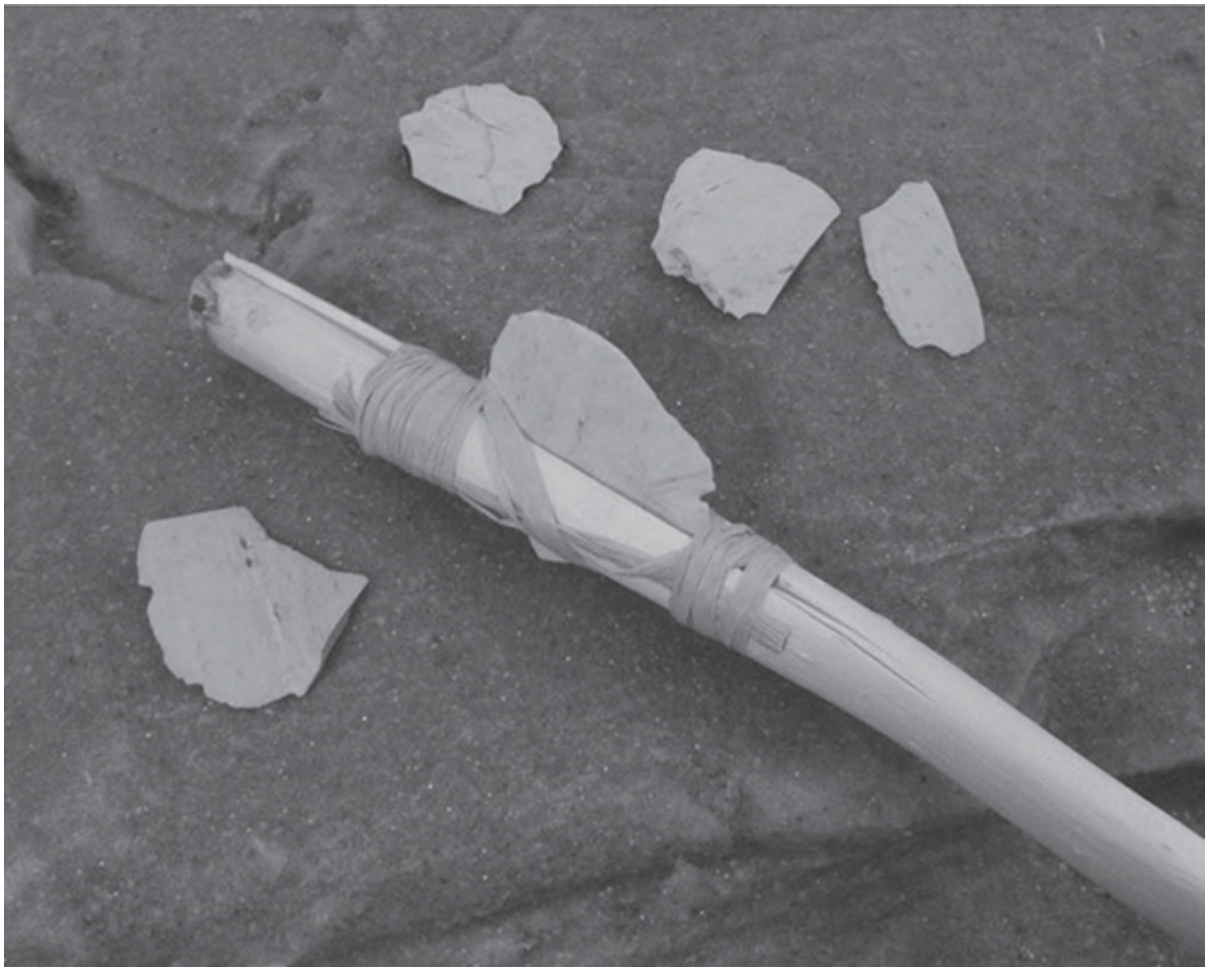
Rarely does one have a perfectly even split when breaking down pine rootlets. One side or the other almost always starts to taper off while the other side gets larger. The way to correct this is to pull on the larger side of the split. This will cause it to even out until each side is equal again. A split can be kept even as long as you always pull pressure on the larger side of the split. This trick also works great for splitting any natural flexible vine, wood or bamboo.

SKILL# 253
How to Make an Improvised Tarp Boat

A very effective survival tarp boat can be improvised from a 6-foot by 9-foot or larger tarp, some cordage and natural materials. First, lay the tarp flat on the ground. Then, pile pine boughs or leafy branches in a circle about 12 inches tall. This will be the diameter of your boat. Leave at least 1 or 2 feet of tarp around the perimeter. Lay a grid of sturdy sticks on top of the brush circle, then pile another 12 inches of green boughs on top, again in a circular pattern. Finally, wrap the tarp around the circle and tie it to the grid of sticks. See the full color step-by-step photo series here: willowhavenoutdoor.com/general-survival/improvised-tarp-boat/

SKILL# 254
Make a Stone Flake Knife

Some of the most useful stone tools are simple flake knives. A stone flake cutting tool is very simple to strike from a piece of flint, chert, quartz or obsidian and requires no previous flint knapping skill or expertise. Once a small sharp flake is struck it can be wedged into a split stick and lashed into place. Start above the blade with a clove hitch and round lashing. Continue the round lashing behind the blade to help hold it in place and then finish below the blade with more round lashings and another clove hitch.



Stone flakes make excellent cutting tools. Shown here is a simple one lashed on a willow stick with extra replacement blades.

SKILL# 255
Understand the Use of a Flame Extender

Flame extenders do exactly what the name suggests – extend a flame to burn longer. Try the following exercise at home: Ignite a cotton ball with a match and count how long it burns. Now, take the same size cotton ball and saturate it with petroleum jelly and count how long it burns. The one soaked in petroleum jelly will burn up to 50 times longer. Flame extenders such as petroleum jelly, chapstick, pine sap, balsam fir sap and hair pomade can be mixed with a variety of manmade or natural tinders to make them burn longer and stronger. Keep an eye out for them when the time comes to start an emergency fire.

SKILL# 256
Make a Thermoregulation Kit

Every car, purse, daypack, ATV, snowmobile, ski jacket, hunting pack and first aid box should contain the following items to help regulate core body temperature:

1. Emergency survival blanket: Designed to reflect up to 80 percent of body heat this can be used as a standalone shelter blanket, fire reflector or signal mirror.
2. Plastic ground cloth: A large plastic painter's ground tarp is very small when folded and makes a suitable emergency tent.
3. Ferrocerium rod: A ferro rod will spark under any condition, in any environment and in any temperature. Use it to light a fire.
4. PET balls: Cotton balls soaked in petroleum jelly are the best fire tinder on the planet. Saturate a few cotton balls with Vaseline, put them in a resealable bag and include them in this kit.

SKILL# 257
Create Your Own Wilderness Tarp Clips

It can be quite challenging to attach an emergency survival blanket or plastic tarp to a framework of sticks for a shelter canopy, windbreak or heat reflector. The simple manufacture of wilderness clips makes this process much easier. Simply cut a 3- to 4-inch branch that is at least ¼ to ½ inch in diameter. Make a cut halfway through the stick right in the middle of it. Now, using your thumbs, press on the back side of the cut. This will cause the front side to split away in each direction. Make sure that each side of the cut on the front side splits away so that the entire stick can be bent to form a primitive-style clothespin. This can now be clipped over the material and onto the framework beneath.

A handy wilderness clip can be made almost anywhere, just like this split stick used to hold a plastic sheet to a shelter framework.

SKILL# 258
Nighttime Navigation: Connect the Moon Tips to Determine South

When the moon is crescent shaped a line can be drawn to connect the tip of the top part of the crescent to the tip of bottom part of the crescent. Continue that connecting line at that same angle down to the horizon. This point is south in the Northern Hemisphere. This is because the lit side of the moon is reflecting light from the sun in the west.

SKILL# 259
Make a Fatwood Sliver Torch

A fatwood sliver torch makes a great 30-minute torch for lighting camp at night, traveling to the latrine or providing light for gigging frogs and fish at night. It is best made by splitting a 1- to 2-inch diameter green sapling down the middle for a length of about 10 inches. Next, slide a handful of pencil-size fatwood slivers sideways (horizontal) into the split. Lash the top of the split closed tight with green pine root cordage to hold the slivers tight. Ignite the bottom sliver and watch the flame climb.

Light up a dark wilderness night with a fatwood sliver torch.

SKILL# 260
Junk Food Could Save Your Life

We've all been told many times that junk food can kill you. Ironically, it can also save your life. Fatty chips and snacks fried in oil make incredible fire kindling – the high oil content makes them very flammable. In fact, a small bag of Fritos can start a survival fire in the worst of weather conditions. They are also conveniently packed in a waterproof bag. Next time you start a campfire, hold a match to an oily snack chip and see for yourself.

Fried corn chips make excellent fire tinder.

SKILL# 261
Insulate Your Clothes with Seed Head Insulation

Everyone knows the insulating properties of goose down feathers. Down jackets and sleeping bags bring top dollar at camping and outdoor retail stores. But did you also know that the seedpods from many plants have insulating properties that rival down? Two, for example, are cattail down and milkweed down – both of which are also waterproof. In fact, both were used to stuff life jackets at one time. An incredible amount of insulation material can be gathered from just one stand of dried cattail seedpods. These pods can be broken open to increase their surface area and stuffed in between clothing layers for an insulation barrier that will rival the most expensive jackets on the market. Many seedpods from other grasses and thistle will also work well. Contrary to what one might think, it doesn't take very long to gather enough seed down to make a huge difference.

SKILL# 262
Carving Notches: The Bow Drill Notch

The bow drill notch is simply a V-shape notch carved in the hearth board of a bow drill kit to catch and collect wood dust generated from the friction process. It is a good notch to practice and master because it has several other applications, such as on the end of a pine root stripper and in several primitive trap designs.

The V notch carved in this hearth board is essential to collect ember dust when using a bow drill.

SKILL# 263
Survival Plants: Ground Cherry (Physalis)

My favorite name for this plant is Chinese lantern because that's exactly what the edible mini-tomato-like fruit look like in late summer. Its small yellow to orange fruit is surrounded by a five-sectioned papery husk and it has also been called the husk tomato. The fruit has a tart flavor that is very refreshing, and they often grow in open, dry sunny areas. When left inside the husks, the fruits can last as long as three weeks after being picked, and I've eaten them frozen solid on the plant in the dead of winter as well. Most plants I've seen are no taller than 36 inches and are rather bushy in appearance.

Ground cherries with decaying husks.

SKILL# 264
Venomous Snakes: Coral Snake

The coral snake can be found across the southern half of the United States from the Carolinas to Texas. Its pattern is very unique with bands of red, yellow and black. Several other species of snakes have similar markings, but the yellow and red bands on the North American coral snake touch each other. A phrase to help identify a coral snake is: “Red on yellow, kill a fellow. Red on black, OK Jack.” Coral snake venom is a very potent neurotoxin that can cause breathing failure in just a few hours. It spends most of its time hiding in leaf litter and forest duff. Keep an eye out and steer clear of them!

Notice the unique banding on the extremely dangerous coral snake.

AUTUMN

SKILL# 265
Thatch a Roof with Palm Leaves

Primitive cultures used the large fan-like leaves of the palm tree almost exclusively to thatch their shelters in the Pacific Islands and the jungles of Southeast Asia. There is a trick to doing this that should be noted. The inexperienced survivalist may think to place the entire leaf of the palm tree on the roof for thatching. However, it's important to split them IN HALF lengthwise before doing so. No tools are required to do this. Palm leaves readily split right down the middle with little effort when the split is started between the leaves at the very tip. Splitting the leaves allows the builder to thatch the roof with all of the leaves facing in the same direction, versus half pointing up and half pointing down. The leaf halves should then be lashed onto the roof lengthwise from left to right starting at the bottom and overlapping just like traditional roofing shingles.

SKILL# 266
Disguise Yourself with Primitive Camouflage

Whether for hunting or hiding, it is possible to nearly disappear in the wilderness with a very simple primitive camouflage technique. This method works best when stripped down to bare skin, but can also work with a thin layer of clothing on if necessary. First, completely cover yourself with gooey mud from the bank of a creek or pond. While the mud is still wet, press handfuls of forest duff (leaves, sticks, grass, etc.) all over the mud. The duff will stick to the mud and stay put as it dries in place. This natural break-up pattern creates a natural camo that is nearly undetectable – to man or beast.

The author is covered in mud and forest duff to demonstrate the effectiveness of natural camouflage.

SKILL# 267
Fire Tinder: Palm Fibers

The palm tree is an incredible fire-starting resource. Not only is the soft wood an excellent choice for friction-fire kits, but the fibers also can be used to make an incredible tinder bundle. Fuzzy hair-like fibers can be found along the trunk, on the crown or under the leaf petioles of many species of palm. These fibers make excellent tinder bundles and can also be used for insulation in clothing and beds, rope making and basket weaving.

A quick tinder bundle can be made from the fibers between the old leaf petioles of this palm tree.

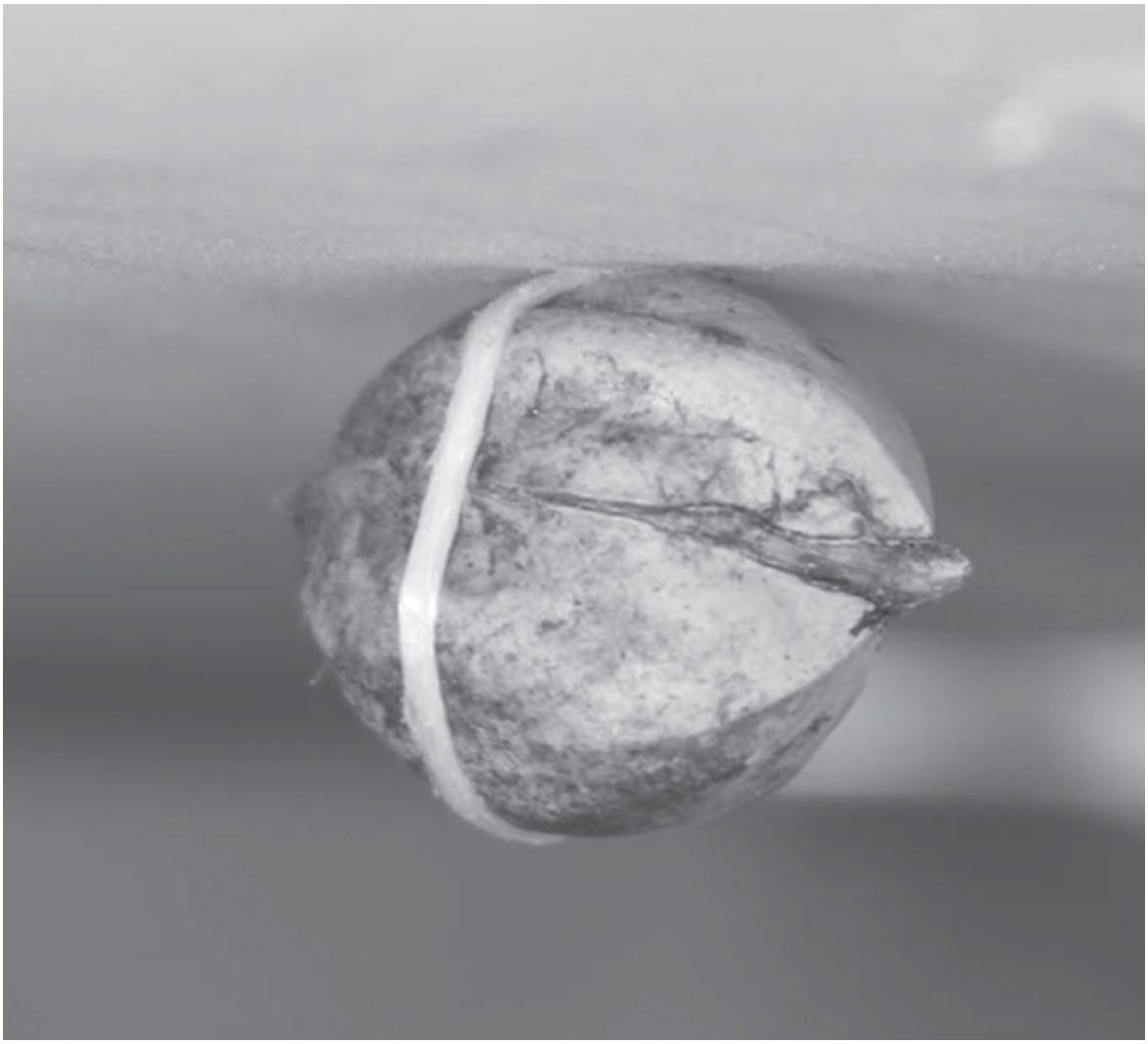
SKILL# 268
How to Harvest Valuable Leather Cord from Small Hides

Every animal, no matter the size, can be used in its entirety. This includes the small hides of critters such as rats, rabbits, squirrels and chipmunks. While you probably won't be making a squirrel overcoat anytime soon, you can definitely harvest many feet of valuable leather cordage from the tiny hides. This is accomplished by spiral cutting the hide as shown in the photo using a jig made from two knives stuck side by side in a log – one acts as the cutting blade and the other (facing backwards) to act as the guide for width. By starting at the outside and slowly cutting toward the center in a spiral pattern, many feet of leather cord can be cut from a single hide.

Rabbit hide being pulled through a double knife jig.

SKILL# 269
Survival Trapping: The Slip Door Trap

The slip door trap is based on gravity; on which we can always rely. It first involves constructing a simple pen that can contain the quarry you're after. In the accompanying photo I've used scrap wood and sized it for local wild rats. Next, a lid is made or chosen that will cover the pen and a small hole is drilled in the top. A small piece of rope or string, in this case dental floss, is run through this hole and around the bait. The string, anchored by the bait under the lid, suspends the lid above the trap. When the bait is taken or eaten, the string slips through the hole and drops the lid onto the pen, capturing the animal. The same principles of this trap can be recreated with natural materials.



Here’s a close-up view of the string tied around the nut to hold open the trapdoor.

The slip door trap is set and ready for action.

SKILL# 270
Drinking from Vines

Nonpoisonous vines are an excellent source of fresh drinking water during late winter, spring and early summer when the sap is running. Grapevines are some that most people will recognize, but any vine that drips water when cut is a candidate. There are four basic rules for drinking water from vines:

1. The water should be clear, not milky or discolored.
2. The water should not have a foul odor.
3. The water should have a mildly woody to zero flavor taste profile.
4. Water should never be consumed from a vine known to be poisonous – such as poison ivy.

SKILL# 271
How to Cut a Vine for Drinking

Yes, this is actually a skill. There is a trick to drinking vine water that many people have not heard of, and the physics of it is very similar to how a gas can works. On the back of most gas cans is a vent hole. As gas is poured from the can, it creates a vacuum inside of the can that can slow pouring. Opening the vent allows the can to draw in air that, in turn, allows the gas to pour freely. The same principle applies to drinking vines. A crossways notch should be cut into the vine approximately 4 to 5 feet above where the vine is cut off. This reduces the vacuum effect inside of the vine and allows water to flow out faster and in greater volume.

SKILL# 272
Make a Birch Bark Torch

Thick curls of birch bark – the entire bark layer and not just the thin papery curls – should be layered together and rolled into a cone shape. This birch cone should then be inserted into a four-way split made in the end of a green wood handle cut from a sapling. This four-way split can be held open by pressing in small, carved dowels perpendicular into the splits. It makes an excellent short-term (less than 30 minutes) torch for nighttime signaling, fishing, scaring predators or emergency lighting. Several extra cones can be prepared in advance and used as quick replacements.

Birch bark tiki-style torches can really help to keep mosquitoes at bay in the wilderness.

SKILL# 273
Make a Parachute Tipi Shelter

A parachute is an amazing canopy resource to a downed pilot. It is also a source for more parachute cord than a survivor could ever need. Plus, a tipi shelter can be erected with it in mere minutes. First, lash a quad pod using the same lashing as for the tripod. This should be from poles at least 10 feet long. Attach the center of the parachute to the top of the quad pod, stand the frame upright and arrange the legs in a circular pattern. More poles can be added at this point, but it's not necessary. Stretch the parachute canopy around the frame and secure it with stakes to the ground. Often, the canopy is large enough to tuck under as a moisture barrier and bedding inside of the tipi perimeter. I once spent six days in the Sonoran desert with three other men using this exact same shelter system, and it worked much better than we expected.

The author constructed a parachute tipi shelter using four dead agave flower stalks.

SKILL# 274
Eat Tree Bark Spaghetti

Cambium (inner tree bark) spaghetti is actually pretty good – IF you source it from the right tree. Two of the right trees are birch and basswood. The very light-colored layer of inner bark just beneath the outer layer can be scraped with a sharp rock or knife to form a shredded mass of sweet spaghetti-ish fibers. These can be eaten raw and contain carbohydrates and valuable vitamins and minerals. This is easily accomplished in late spring when the outer bark from both trees is easily peeled away.

SKILL# 275
Start a Fire with Water

A clear plastic bag, condom or balloon makes an excellent solar fire lens. The trick is to make sure it is fashioned into a spherical shape. Anything clear that is circular in shape and filled with water creates a very good focal point. The bag or balloon must also be very clear. If it is cloudy or off-color, try twisting a smaller section of it very tight to make it more transparent. This can be seen well in the clear latex balloon in the accompanying photo. I was able to achieve higher clarity by tightly twisting a smaller circle and stretching the latex.

Notice the difference in clarity of the upper water-filled section of balloon that could be used as a solar lens.

SKILL# 276
Three Survival Knife Sharpeners

Here are three little-known knife sharpeners that can help keep your blade in top shape if a traditional whet stone isn't available:

1. Top of a car window: The slightly abrasive top of a car window actually makes a suitable emergency sharpener for carbon steel blades. Work the knife from hilt to tip along the top edge just as you would a sharpening rod.
2. Unglazed porcelain: The gritty surface of unglazed porcelain makes a fine honing implement. Suitable surfaces include the bottom of a coffee mug, the underside of a toilet bowl tank and the bottom of some ceramic planting pots.
3. Fine grit sandpaper: Sandpaper adhered to a board makes a quick and dirty sharpening stone that will sufficiently hone blades for work in the field.

SKILL# 277
Item for Bug Out Location: Chlorinating Pellets

High concentration calcium hypochlorite pellets are available in small 2-pound bags for the treatment of water wells. One bag of these pellets stored at a bug out location can be used to treat many hundreds of gallons of water in a grid-down scenario. Consider storing a bag at your survival retreat just in case. These can be purchased from Better Water Industries, Inc. at www.betterwaterind.com.

SKILL# 278
A Strapping Knife Sheath

A quick and effective replacement knife sheath can be made from a long piece of webbing such as a salvaged length of seat belt material. Fold the webbing several times upon itself to create a pocket for the knife, a loop for a belt, and finish by sewing, gluing, taping or heat welding the sides. A folded piece of plastic bottle can serve as an impromptu insert to keep the blade from cutting through the material.

SKILL# 279
Stranded Car Survival: Make Noose Snares from Scrap Wire

It's common sense that salvaged wire from a stranded car makes great survival cordage and potentially for small-game snare sets, and it's really easy to say something like, "Make a quick snare from scrap wire." However, the reality of making a snare from salvaged wire that you might find in a vehicle is much easier said than done. In fact, creating a small fixed loop in the end of a scrap piece of cable wire is almost impossible without modern tools – UNLESS you know how to tie a special knot. This knot allows you to tie a locking fixed loop in cable wire to make small-game snares without modern tools such as crimps or swedges. Watch video tutorial #18 for complete instructions at: www.creekstewart.com/365-book-videos.

SKILL# 280
Circuit Board Spear Point

A lethal arrow or spear point can be abraded from a small circuit board using a rock or file. Circuit boards can be found in almost any electronic device including radios, cell phones and MP3 players. In addition to makeshift arrow points, the shiny copper surfaces on many circuit boards can be used as an improvised signaling mirror to reflect the sun's rays toward rescuers.

The author fabricated an arrow point by abrading a circuit board from broken cell phone on a rock and lashing it to a self-made arrow shaft.

SKILL# 281
Tree Sucker Arrow Shafts

Suckers are the small shoots that grow from the base of large trees such as willow, basswood and sycamore, which are all notorious for growing suckers. Suckers grow very fast and have a unique lightweight consistency that is ideal for making primitive arrows. They are typically very straight and also free of forks or branches. When searching for arrow blanks, look for first- and second-year suckers growing from the base of much larger mature trees.

SKILL# 282
Giant Puffball Mushroom (Langermannia gigantea)

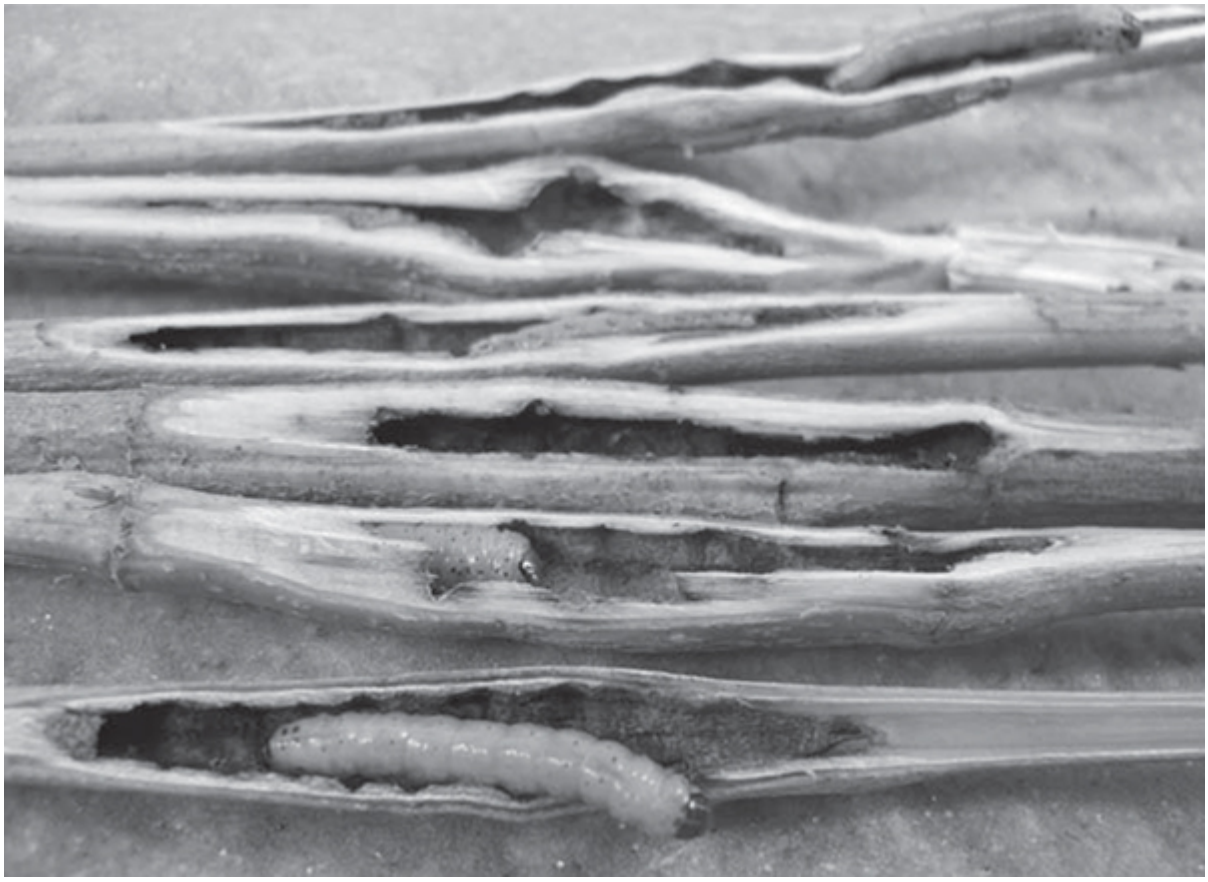
NEVER EAT A MUSHROOM UNLESS YOU ARE 100 PERCENT POSITIVE IT IS EDIBLE. If you find a white, spherical mushroom larger than a softball growing in the woods, it is a giant puffball mushroom – and it's edible. Giant puffballs, in the edible state, are solid and pure white all of the way through – like tofu. There are a couple of small, round white mushrooms that are poisonous, so use caution. The giant puffball should be larger than a softball and should be solid, pure white throughout with no gills, stalks or discoloring. Giant puffballs are best peeled, sliced and fried with a little pepper and first-year garlic mustard leaves. Slices can also be added to soups and stews.

These are great specimens of volleyball-size giant puffball mushrooms growing in the woods.

SKILL# 283
Giant Ragweed Fishing Bait

This is a trick my grandpa in Kentucky taught me. The giant ragweed plant can be found in many parts of the world. Close inspection of the stalk during later summer months can reveal swollen and deformed areas. These are the result of parasitic larvae that feeds on the interior of the ragweed stalk. These juicy larvae make excellent fishing bait. A small stand of ragweed can often yield several handfuls of choice fishing bait.

A giant ragweed leaf.



Grubs living inside the swollen, deformed stalks of giant ragweed.

SKILL# 284
Loads of Edible Larvae

An ant mound can offer quite the meal if you know this simple trick. Ant larvae are edible and actually pretty delicious when fried or added to stews. However, they can be tedious to collect. When exposed to sunlight, worker ants will instinctually take their precious larvae to a shaded area. If an ant mound is found in the wild, a tarp with a corner folded over to make a shaded area can help to quickly gather hundreds of edible and nutritious ant larvae. Use a shovel to dig into the ant mound and place the shovelful in the middle of the tarp. The ants will frantically take any larvae to the nearest shaded area, which will be under the folded corner or your tarp. Repeated shovels of ant mounds will produce handfuls of larvae that can be easily gathered for eating.

SKILL# 285
A Torn Grommet Substitute

A missing or torn grommet can be quite a setback when erecting a survival canopy shelter. The best-known substitute without modern gear is to wrap the edge of the canopy material around a quarter-size stone and tie the guyline around that stone. This creates an anchor point and eliminates the need for a grommet. The guyline should be tied around the wrapped stone with a constrictor knot (see Skill No. 2) and it will not loosen in heavy winds.

SKILL# 286
The Fire-Starting Tool Everyone Should Carry

A business card the size of a magnifier is available at most local pharmacies and is a very powerful fire-starting tool in the hands of a knowledgeable survivor. It costs just a couple dollars and takes up no space at all in a wallet, purse or micro survival kit (see Skill No. 290). It can be used to focus the sun's rays on fire tinder and generate an ember that can be placed into a tinder bundle and blown into flame. Watch the video at this link where I show you exactly how to use it: willowhavenoutdoor.com/punky-wood-video/.

SKILL# 287
Edible Insect Guidelines

Thousands of insects are edible and should absolutely be considered as survival food. However, when it comes to eating insects in the wild, the following four guidelines should always be followed:

1. Never eat brightly colored insects. Bright colors are Mother Nature's way of saying STAY AWAY.
2. Don't eat insects that smell or secrete smelly fluids.
3. Don't eat insects covered in spine-like hairs, stingers or bristles.
4. Thoroughly cook all insects to kill any parasites.

SKILL# 288
A Bug Out Bag Water Tool: Silcock Key

Retreating from a large-scale disaster may require scavenging water from unusual places. One such source is from the exterior spigots on commercial buildings and restaurants. To prevent tampering, these spigots are typically fitted with a valve that requires a special tool, called a silcock key, to turn it. Having a silcock key in your bug out bag gives you potential access to hundreds of commercial spigots that may still have water in the lines. Silcock keys can be purchased from the plumbing section of any home improvement store for just a few dollars.

Having a silcock key is an easy urban survival tool to keep handy.

SKILL# 289
The Pop Can Hand Reel

Just when you think you've reached a location where no other human has been, you see a beer or soda can. Although it's not what you want to see on a pleasant day hike, in a survival scenario you can transform it into an effective hack fishing kit. The can itself makes a great tackle box for live bait. Just find a suitable-size pinecone or carve a wooden plug for the hole to keep the critters inside. Two simple cuts to the pop tab using your multitool make a very effective fishing hook with a little barb if you make your cuts wisely – notice how the cut section of the tab forms a small barb in the photo. Scoring with your knife and then bend-breaking the pop tab will also work in a pinch if you don't have a multitool. Finally, the drinking hole seal flap makes a great flashy spoon lure to draw attention to your live bait. Punch a hole in it and thread it on your line just above the hook.

Pop can hand reel with a pull tab barbed hook.

SKILL# 290
The Shoe Sole Survival Kit

Half a dozen useful survival items can be easily and discretely stowed under the sole inserts of your shoes.

1. 15 feet of fishing line coiled and duct taped to the bottom of each sole.
2. Three fishing hooks of different sizes duct taped to the bottom of a sole.
3. A Fresnel magnifying lens (detailed previously) for fire starting.
4. Large denomination paper money for emergency use only.
5. Two packaged water purification tablets.
6. Razor blade or hobby knife blade duct taped to bottom of the sole.

Sample shoe sole survival kit.

SKILL# 291
Cordage Plant: Dogbane (Apocynum cannabinum)

Dogbane, also called Indian hemp, grows throughout much of the United States. It is typically found growing in large groups and has a reddish-maroon stalk with many fine branches at the top. The plant grows anywhere from 24 to 60 inches tall and is considered poisonous. Like milkweed, it also has a milky white sap in spring, summer and fall months. Dogbane is a source of long, strong fibers that run the length of the stalk. These are best harvested after the plant has died and dried because the sap can be irritating to the skin. Native tribes used dogbane fibers for anything from clothing to fishing nets and even bowstrings. It is considered one of the top five cordage plants in the U.S.

Dogbane is poisonous, but it makes outstanding cordage.

SKILL# 292
Earthworm Roundup

My grandfather showed me this skill many moons ago, and it never ceases to amaze my students and I. This must be done in the fall when the walnuts are still wrapped in their green husks. I can guarantee you all the big red nightcrawlers for fishing you'll ever need. Fill a 5-gallon bucket about half full of water. Then smash about 30 green walnuts with a rock and throw them one by one into the bucket of water. Next, stir this mixture vigorously for five minutes. Finally, clear the leaves and woodland duff from a 3-foot by 3-foot section of moist forest floor, and pour the rancid mixture evenly throughout. Like magic, worms of all types and sizes will begin to writhe to the surface to escape the noxious poison. Green walnut husks have a high concentration of the compound juglone, which in addition to annoying earthworms, can be used to paralyze fish in small pools.

SKILL# 293
Charcoal Slurry for Upset Stomach

Activated charcoal is an effective treatment in emergency room care for poison victims. Activated charcoal tablets can also be purchased at almost any pharmacy and are known to absorb toxins, poisons, chemicals and the like in your system. Charcoal has the unique ability to “attach” to these elements and carry them through your system. The chemical makeup of charcoal is such that it has an incredible amount of attachment points. This is why charcoal is an ingredient in almost every water filter on the market. If you’re in a survival scenario and have a severe stomachache, chances are you won’t have fancy activated charcoal tablets. However, the next best solution is to crush hardwood charcoal – the black stuff, not white ash – from the fire and make a drink. Mix about 2 teaspoons of crushed charcoal with 1 cup of water for a natural stomach pain reliever.

SKILL# 294
Survival Plants: Arrowhead, Wapato (Sagittaria)

Arrowhead, also known as wapato, gets its name from the shape of its leaf. Another identifying feature is how the veins are arranged on the back of the leaf since it's a very unique pattern. They all start out from the center and the pattern looks like a big spider. You'll find wapato growing around water and marshes, and the edible tubers can be harvested around the same time that most other tubers fatten with starches, vitamins and minerals – fall, winter and spring. If the water isn't too cold, wading in the mud and thrashing about will break the tubers free and allow them to float to the top. This breaks my tuber identification rule, but wapato tubers are very unique in appearance, resembling onion bulbs with a small sprout. I prefer to reach into the mud surrounding arrowheads near the bank and search for the tubers without stripping down and wading into the cold water.

The edible arrowhead plant tuber.

This survival plant gets its name from its arrowhead-shape leaves.

SKILL# 295
Never Drink Your Pee

When water is consumed that has a higher salt content than your blood – such as urine, your body has to pull fresh water from somewhere else in the body to dilute the salty water you just drank. That's just the way it works. Unfortunately, we're not wired to magically pull out the salt. It must be mixed and diluted with water at a certain ratio in order to pass through our complex system. This results in having to actually urinate more water out than we took in just to flush out the salt. Your mouth may be momentarily quenched by the wet liquid, but the long-term effects include increased dehydration and ultimately muscle and organ failure. Instead, use your urine to harvest fresh drinking water in a makeshift solar still.

SKILL# 296
Make Your Own Fire Starting Lint

It's no secret that dryer lint is an incredible fire starter. It will burst into flame with just a tiny spark because of its high content of flammable cotton fibers. Many an experienced woodsman or woman carry some dryer lint in their bug out bag. If all else fails, similar lint can be sourced from blue jeans or other 100 percent cotton material by scraping a knife or sharp rock across the material at a 90-degree angle. This action will slowly build a small pile of cotton lint fibers that can be used as fire-starting tinder.

Scraping jeans to source fine-fibered cotton lint is another easy way to make good fire-starting tinder.

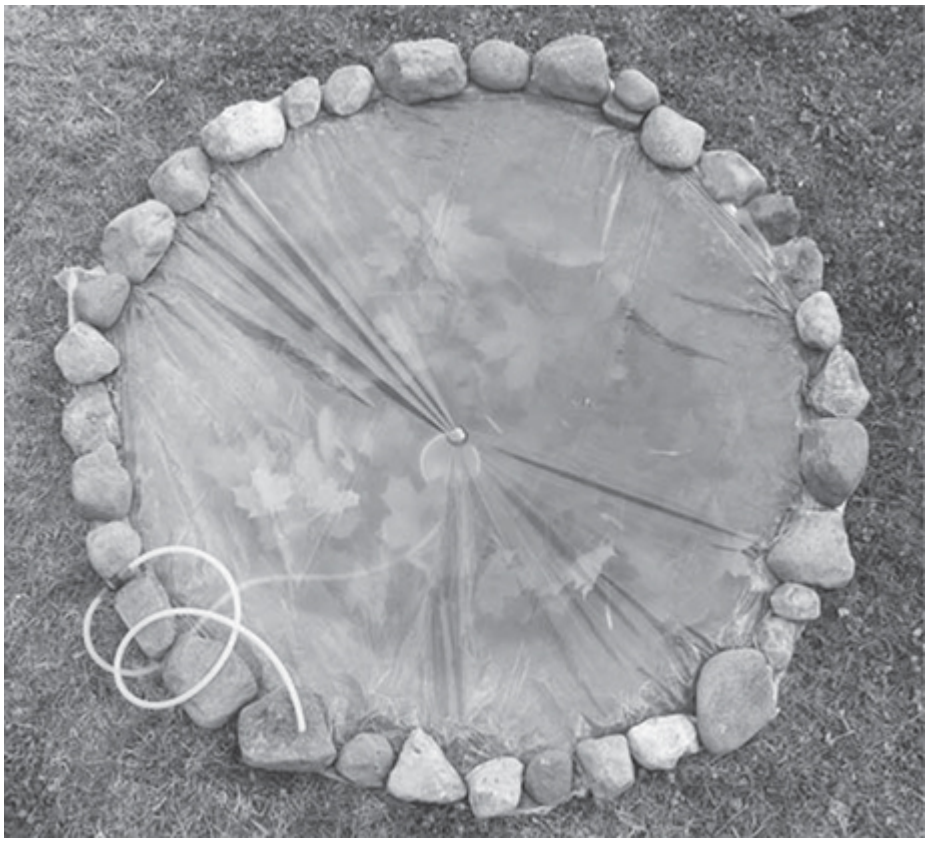
SKILL# 297
How to Make a Ground Solar Still

A solar still uses the power of the sun to condense and collect drinkable water from wet earth, vegetation or salt water such as urine. Ocean life rafts are equipped with floating stills that can condense and collect drinkable water from seawater. A version of this can be made with only a few materials on land, like in the desert where water is scarce.

Begin by digging a hole at least 18 inches deep and 48 inches in diameter. Lush green vegetation can be placed inside to increase your results. Salty water can also be poured inside. Place a collection container directly in the center of the hole. Next, place a sheet of clear, thin plastic over the hole and cover the edges to make a tight seal with the dirt that came out of the hole. Place a stone on top of the plastic sheeting in the very center, just above the container underneath.

When the sun is out, the moisture inside the hole will condense on the clear plastic sheeting and form small droplets that will run toward the center where the stone is and drip into the container. This distilled water is 100 percent drinkable without further treatment. A small tube can be placed into the container that leads under and outside the plastic, so the plastic does not have to be removed to

drink the water. The still only works when there are many hours of full sun and the plastic used is completely clear.



Green vegetation inside a ground solar still will improve the water-collecting results.

SKILL# 298
Survival Plants: Yucca

The leaves of the yucca are green and sword-like, with very sharp points. They grow from a central base and remain green year-round. There are many different species of yucca, with some even growing as large yucca trees, and are not to be confused with yuca, also known as manioc or cassava, which has an edible root.

While not edible, the yucca root does have a unique function. It is loaded with saponins and can be crushed and used as soap for washing. Yucca's other claim to fame is its fibrous leaves. The leaves are filled with long, strong fibers that can be woven into incredible survival cordage.

Immediate cordage can be sourced from the green leaves, but I prefer to use the dead ones that can be found around the base of the plant. It is very easy to slough off the brown flaky exterior and extract the fibers from the dead and dried leaves. I have successfully used yucca leaf cordage combined with a yucca stalk spindle and hearth board for many bow drill kits. The dead, dry center flower stalk of the yucca is a one-stop-shop when it comes to gathering bow drill or hand drill components.

Yucca plant growing in a cemetery.

SKILL# 299
How to Remove the Husk From a Coconut

The drinkable water from inside coconuts has saved the life of more than one survivor marooned on a deserted island. Removing the husk to access the nut inside is easier said than done, though, without a modern machete or knife. The best way to accomplish this is by grasping each end with both hands and slamming the edge of it from chest height onto a sharp stake that's been driven firmly into the ground. The top of the stake needs to be sharpened, and will puncture into the hard husk, then you can use the stake to pry away sections of the husk until the nut is exposed. I've found it easier to drive the stake into the ground first, then sharpen the top after it is driven in.

A dehusking stake is quite handy for opening coconuts.

SKILL# 300
Know How to Drink From a Coconut

The best and most efficient method of drinking from a coconut is to look at the end with the three dark circles as if it's a face. A sharp stick or knife can easily be punched through the mouth hole. This prevents accidental splitting or cracking and loss of valuable water. After the water has been consumed, the coconut can be split perfectly in half by following the visible seam that runs between the eyes of the coconut face to the middle of the top of the "head." Hammering the back of a knife blade or stone directly on the halfway point of this line will split the nut in two equal halves, making it very easy to access the flesh inside.

Your sharpened dehusking stake can also easily poke through “the mouth” on the coconut’s face.

SKILL# 301
Hand Drill Thumb Loops

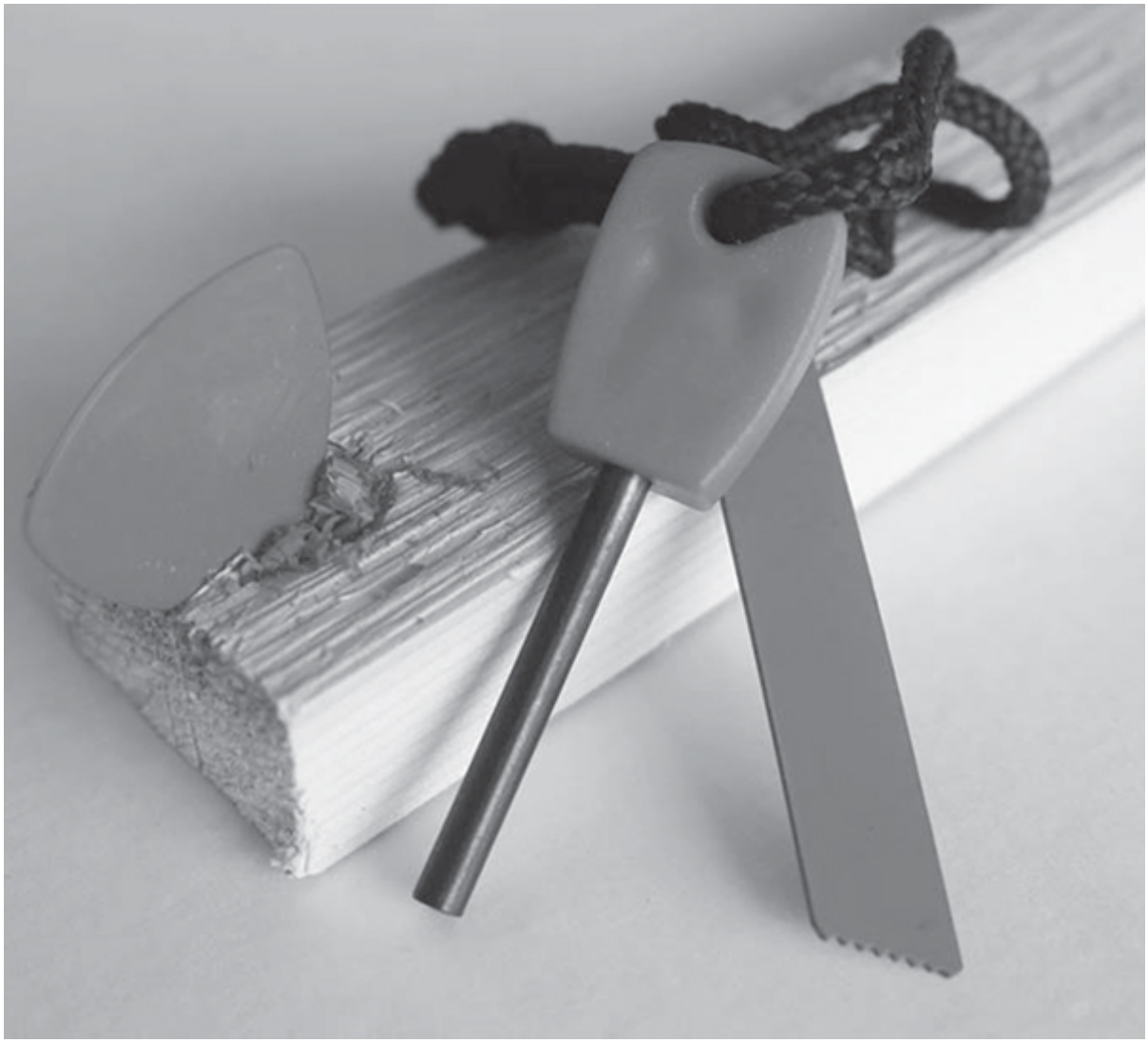
The hand drill is a friction fire technique when a long, slender spindle is spun by hand into a hearth board of similar material to create an ember to start a fire with. Without practice and muscle memory, this skill can be quite difficult for a rookie to master. One way to increase downward pressure is to attach thumb loops. Thumb loops allow a user to rotate the spindle while also pulling down on a cord with the thumbs.

Start by tying a bowline loop that's big enough to pass your thumb through on each end of a 24-inch long cord. Next, lay the middle of this cord across the top of the spindle and lash it to the spindle using a one-inch tall whip lashing. Finally, insert your thumbs and start spinning the spindle while pulling downward on the cord.

The author using thumb loops on a yucca spindle hand drill.

SKILL# 302
Guitar Pick Fire

Guitar picks, as well as most ping pong balls, are made from a material called celluloid, which is extremely flammable. A guitar pick will burst into flames and burn for about 10 seconds if exposed to open flame. However, a spark can also be used to ignite one. Simply use a knife or sharp rock to scrape shavings from the side of the guitar pick into a divot carved in a branch. Use the knife blade to poke a small depression into the middle of the divot and insert a corner of the pick into it. You'll now have a pile of shavings with a guitar pick sticking out of the middle. A spark can ignite the shavings that will in turn ignite the guitar pick and a fire can then be built.



Notice how the pick is positioned into the shaving-filled divot.

SKILL# 303
Make a Bone Container

A very simple bone container can be fashioned to house a variety of small implements, including needles and fish hooks. Saw or score and snap one end from a bone with a large enough diameter to make a container. Depending on the age of the bone, you may need to ream out the marrow with a sharp stick or awl. Once hollowed out and cleaned, carve a wooden plug to fit securely into the top.

Here's a handmade bone container housing needles and fish hooks.

SKILL# 304
Grow a Secret Survival Food Crop: Jerusalem Artichoke (Helianthus tuberosus)

I have thousands of root vegetables naturally growing around my property at Willow Haven and no one knows it (until now I guess). Several years ago I planted about 10 Jerusalem artichoke tubers that have now multiplied by many hundreds each. Jerusalem artichoke, also known as sunchoke, is a species of sunflower native to the eastern United States. One tuber, if left in the ground over winter, will multiply to many more plants. The tubers are much like potatoes and are sold in some of the most high-class restaurants and grocery stores in the world. They are best kept in the ground during winter and can be harvested from late fall through early spring. They are a low-maintenance survival crop that would make a wise addition to any survival retreat or homestead.

A large cluster of edible tubers at the base of a Jerusalem artichoke plant in September.

SKILL# 305
Use a Compass to Scout from Basecamp

A woods-wise person will follow a compass bearing when scouting out from survival basecamp in certain environments. It is very easy to become disoriented in areas with thick vegetation of the same or similar species, such as the spruce and pine forests of the northwoods, or the palmetto thickets of the Southeast. These areas do not offer varied landscape or trees that can be used as reference points for finding the correct direction back to camp. In this case, all scouting trips from basecamp should be in straight lines, using a compass bearing.

Set a bearing when leaving camp and walk only on that bearing, marking the spot of departure if you step away from the line so that you can return to the line and continue. Side trips to investigate or gather resources can be taken, but forward travel should only occur when on the original line with your compass bearing set. Then, on the return trip, simply add 180 degrees to your bearing and follow the new heading back to basecamp.

SKILL# 306
Using a Watch as a Compass

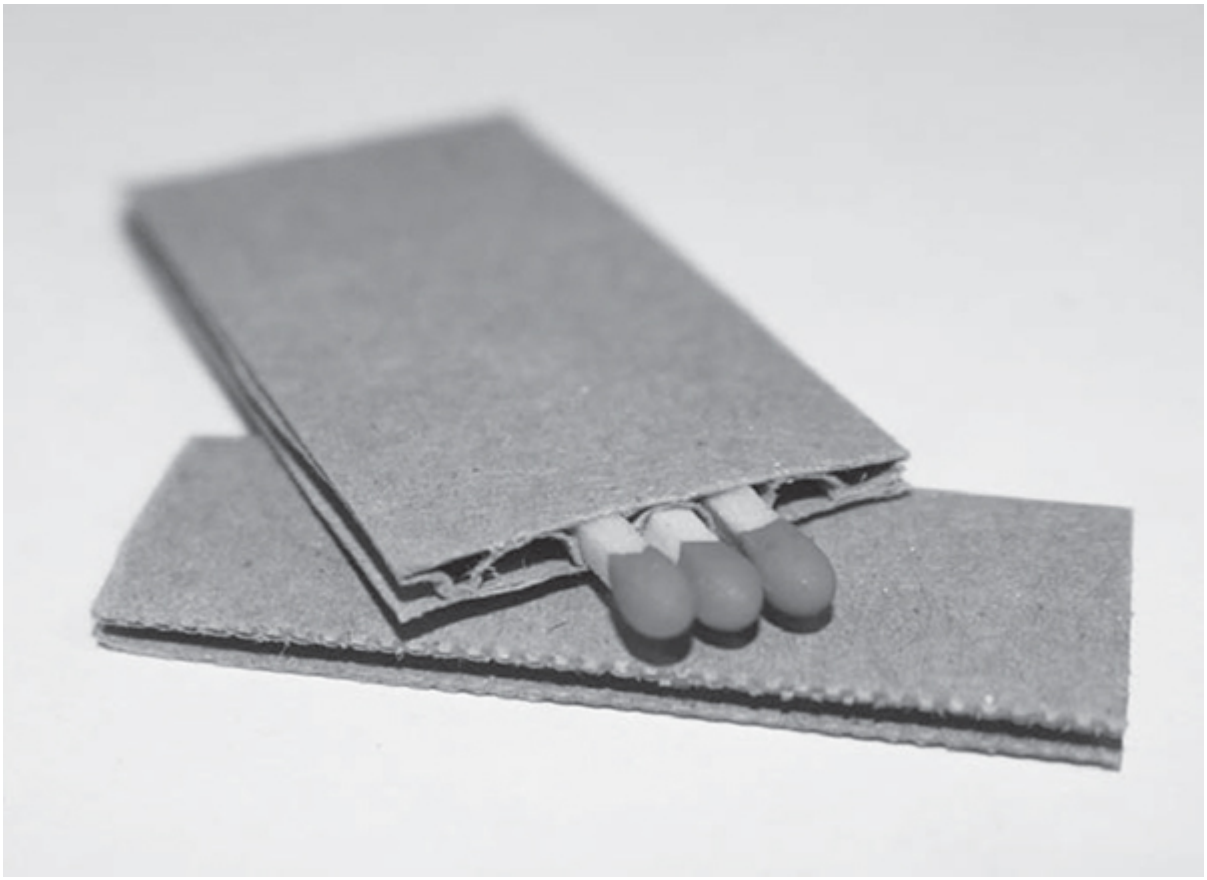
If you know the time then you can find the compass direction. Start by pointing the hour hand of your watch toward the sun. If you're not wearing a traditional watch with an hour hand then draw one on the ground. The point halfway between the hour hand and 12:00 noon will be south, and with this knowledge all of directions can be determined.

SKILL# 307
The Spanish Moss Misconception

Those who live in the South are very familiar with the Spanish moss that adorns the trees in many areas. I've heard many say that Spanish moss is great fire tinder. It is not. Although it looks like great fire tinder, it is a living plant and does not burn well. Also, do not use it for bedding because it is notorious for being laced with red bugs and chiggers. Its best use is for signaling. Mounds of Spanish moss can be placed on a large fire to produce thick, rolling white smoke that can be seen by rescue aircraft and ground teams.

SKILL# 308
Make a Cardboard Triple Threat Match

Corrugated cardboard has small channels that fit wooden matches perfectly when it's cut to the right size. Cut a piece of cardboard with three vertical channels just long enough to fit wooden strike-anywhere matches. Dip this entire triple-threat match in melted wax three times to waterproof the cardboard and the match heads. When ready to use, scratch the wax off the match heads and strike on a rock or other abrasive surface. One match will light the other two, which will then light the cardboard. This is a very inexpensive fire starter that can be prepared in advance and packed into a glove box, bug out bag, fishing kit, gun stock or survival kit. The cardboard will burn like a candlewick and will be very difficult to extinguish even in light drizzle and heavy wind.



Three matches have been inserted into the corrugated channels of cardboard and are ready for dipping into wax.

SKILL# 309
Insulate your Boots with Wool Felt Inserts

Wool felt can be purchased at any fabric store and it only takes a small piece to make a big difference for your feet in cold weather. Remove the insoles from your boots and trace them on the wool felt. Cut out this pattern and place this felt insert inside your boots on top of the standard insoles for an added layer of comfort and insulation; wool helps to reduce odor as well. A simple square of wool felt also makes a great seat cover for cold logs, rocks and makeshift camp furniture. I always keep one in my pack.

SKILL# 310
Hooking Small Game

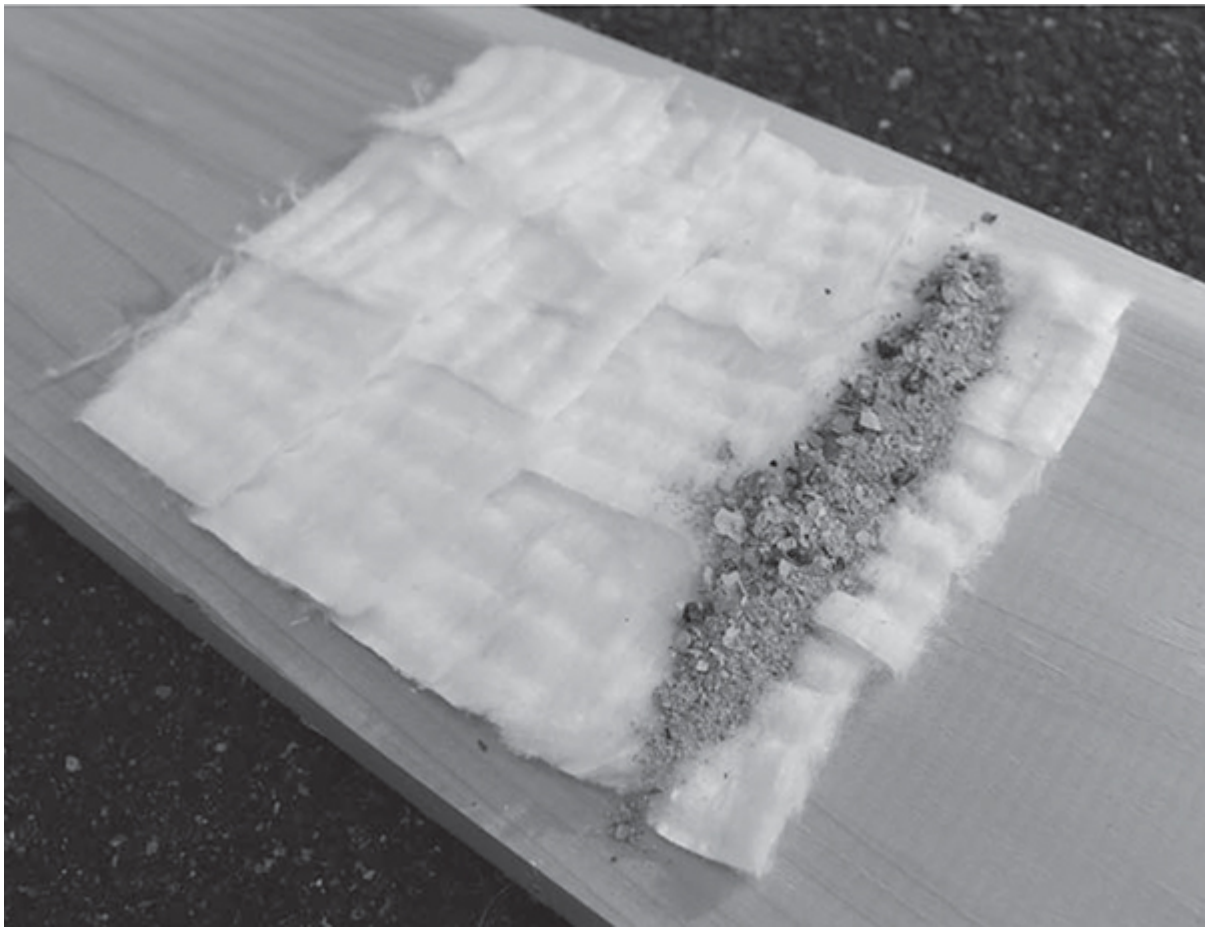
In survival situations, when life or death comes down to eating, all options are on the table. Even I consider this a last resort – but it should at least be mentioned. In survival, fish hooks aren't just for fish. They can be baited and used to catch a huge variety of game including almost all birds, ducks, turkeys, snakes, alligators, frogs, squirrels, raccoons, opossums, bats, rats and everything in between. An assortment of fish hooks should be kept in every survival kit for this very reason. Baited with wire leaders, small-game hooking is an incredibly effective means of survival trapping. Note: This method of trapping is illegal and should only be employed in an actual survival scenario.

SKILL# 311
Carry Fire with a Sycamore Fire Roll

The sycamore tree contains every component necessary to carry fire. Sycamore bark peels from the tree in thin tubular strips. The strips can be layered together to form a thick sycamore bark tube. The fibrous seed balls should then be broken apart and stuffed into the bark tube to provide packing material for a hot coal from the fire to be placed inside. Once a coal has been pushed into the tube, the end can be stuffed with more seed ball material to control the flow of oxygen. You want just enough air to keep the coal alive – but not enough to catch the bundle on fire. Both sycamore seed ball material and sycamore bark are adequate smoldering tinders, and a coal can be carried with this method for quite a distance before the tube needs to be replaced.

SKILL# 312
Cotton Fire Cigar

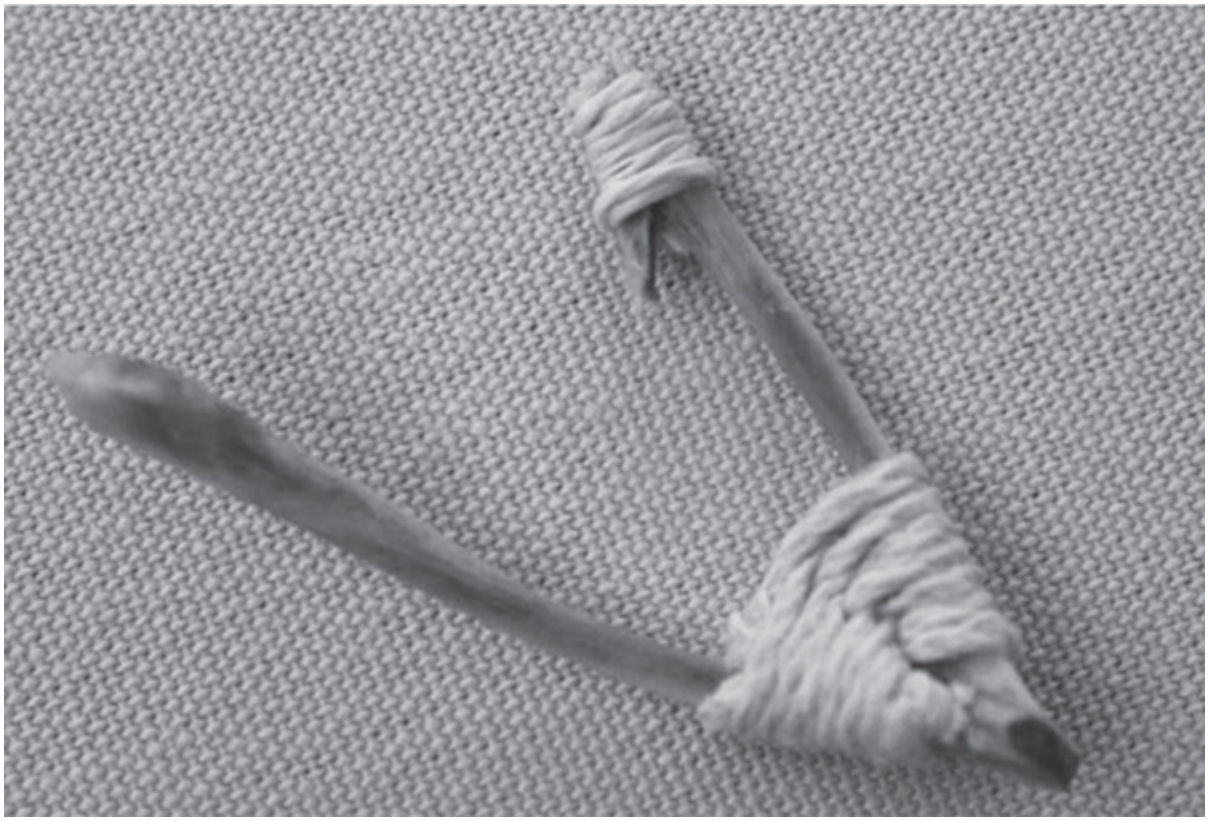
This skill is a friction-fire starter that will blow your mind. Start by pulling apart cotton balls or tampons and flatten the pieces onto a board so that you make a flat rectangle about 3 inches by 8 inches. Sprinkle a line of wood ash about the size a pencil along one end. Next, roll the ash up inside of the cotton like a cigar. Continue to pack and roll it with your hands so that it's fairly compacted. Finally, place the cotton and ash cigar between two boards and move the top board back and forth so that the cotton and ash cigar rolls beneath it on the other board. Continue to do this very fast with medium pressure for about one minute. The friction of the carbon particles in the ash combined with the pressure will cause a small ember to form in the cotton fibers. Pull the cotton apart and you can blow the ember into a flame!



Ash placed across cotton fibers, ready to roll into a cigar shape.

SKILL# 313
Make a Bird Wishbone Fish Hook

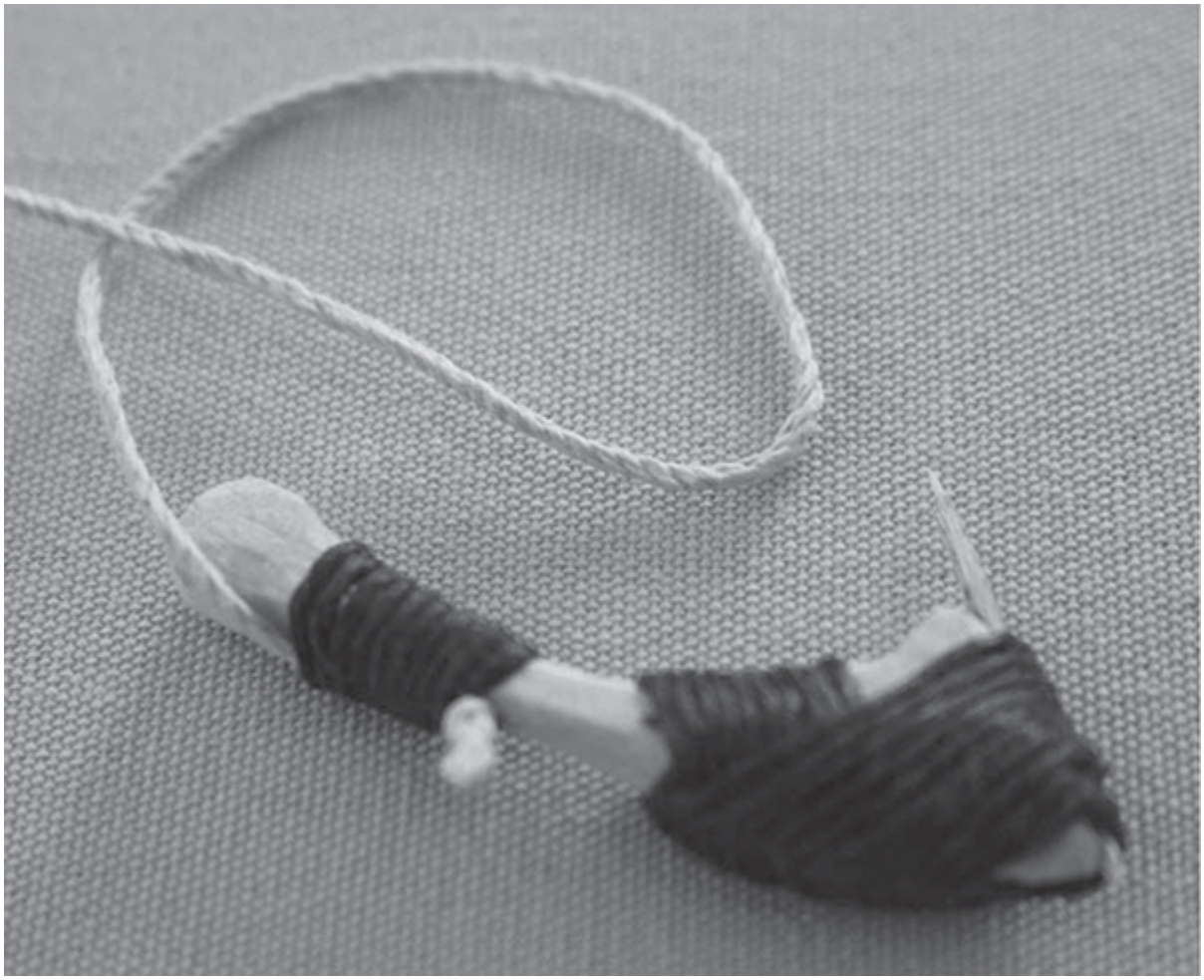
Wishbones, called furcula, are Y-shaped bones found in the chest of birds. The furcula from larger birds like crows, chickens, raptors and some doves can be fashioned into a suitable fishing hook when reinforced with a simple figure 8 lashing. Trim one end of the furcula to form the barb and also trim or abrade the excess bone below the fork. Finally, prevent the fork from breaking by using any available natural or manmade cordage to lash a figure 8 support lashing in the crook. Watch video tutorial #19 for complete instructions in tying the figure 8 lashing at: www.creekstewart.com/365-book-videos.



The author lashed the base of this wishbone fish hook to give it more strength.

SKILL# 314
Attach a Primitive Fish Hook with the Jam Knot Whip Lashing

Tying primitive fish hooks to fishing line can be easier said than done. This is why there is so little available information on the subject. The method I've found to be very successful involves using the whip lashing, which I've detailed earlier, and a simple overhand knot. Start by tying an overhand knot at the very end of the fishing line. If it is very thin line, consider tying two. Lay this line parallel to the hook shaft with the knot about ¼ inch below the top of the shaft, which has been carved to be slightly bulbous in shape. Using a separate piece of cordage, tie a whip lashing around the fishing line and hook shaft between the knot and the bulbous top of the hook shaft. The top of the hook shaft will keep the whip lashing from sliding off and will also prevent the overhand knot from pulling through.



Notice the whip lashing above the overhand knot to keep the line from slipping off.

SKILL# 315
Glow Stick Buzz Saw

When most people think of a glow stick nowadays what comes to mind are roller rinks, sporting events or rave dance parties. Although I'm not a big fan of glow sticks for survival lighting, there is a unique way to use one that makes an excellent – and really simple – rescue signal. Tie a 3-foot length of rope to one end of the glow stick and spin it as fast as you can in a circle facing the direction of your rescue party. At night, this will create a glowing orb, 6 feet in diameter, which forms an effective visual rescue signal – a big out-of-place moving object. A rescue signal like this can be seen for miles by a ship or aircraft. To see this in action, visit www.willowhavenoutdoor.com/buzz-saw-rescue-hack.

SKILL# 316
Fishing Line from Bull Kelp (Nereocystis luetkeana)

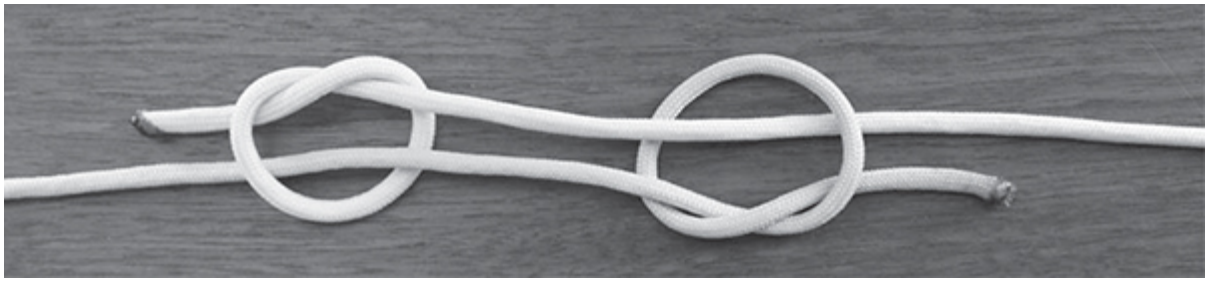
Those living in coastal areas are familiar with bull kelp. It is one of the fastest growing plants in the world, growing up to 120 feet in its one-year lifespan. The long, tubular stems of bull kelp can be used as a thick primitive fishing line, and can be tied together using the fisherman's knot. A more refined, less visible "leader" from thinner cordage should be attached to the end, but the bulk of the line can be made from kelp that has simply washed onto shore. This can save the hours of time it takes to make primitive cordage from tree or plant fibers.

SKILL# 317
Survival Knots: Blood Knot

The blood knot is similar to the fisherman's knot in that it is used to tie two lines together. However, the blood knot is better suited for slippery monofilament lines and does not affect the overall strength of the line. Watch video tutorial #20 for complete instructions at: www.creekstewart.com/365-book-videos

SKILL# 318
Survival Knots: Fisherman's Knot

The fisherman's knot is used to tie fishing line together and is simply two overhand knots, each tied around the other line as shown in the accompanying photo. It is a jamming knot that gets tighter with tension. But remember, this knot isn't sufficient for connecting slippery monofilament lines.



How to tie the fisherman's knot.

SKILL# 319
Bull Kelp Float Container

The tubular stem of bull kelp is held vertical in the water by a bulbous float at the top of the plant that is filled primarily with carbon monoxide. This float can be cut off and dried to make a very nice little container. Fill it with dry sand to help keep its shape while drying, and then just dump out the sand when it's ready. It is watertight and can hold fresh water for drinking.

Two small containers made from dried bull kelp floats.

SKILL# 320
Grass Rescue Whistle

Almost any kind of whistling noise will carry farther and with less effort than screaming for help. This includes the noise made from a grass blade whistle. Start by finding a nice wide blade of grass. Place it between your thumb joint and knuckle like in the photo. Press your pursed lips up against your thumbs and blow. Adjust your thumbs until the whistle works. An old-timer once told me he used this trick as a predator call for coyote hunting because it sounds similar to a screaming rabbit.

The proper placement of a grass blade for an emergency whistle.

SKILL# 321
Water Bottle Bota Bag

A plastic water bottle can be used to create a much larger bota bag canteen using a scrap piece of plastic sheeting, section of poncho or plastic bag. Start by cutting off the top of the bottle about 1 inch from the bottom of the neck. Next, pull the center of the plastic sheet, poncho or bag down through the mouth of the bottle top. The part that you pull through the bottle top will form the canteen reservoir. Fold any excess over the thread and screw the cap back on to make a watertight seal. Voila – instant bota bag canteen!

Check out this bota-style canteen made from a plastic sheet and trashed water bottle.

SKILL# 322
Cordage Plant: Kudzu

Those living in the South are familiar with Kudzu. It is an invasive vine that can kill an entire forest by covering it with shade. Many do not know that it is also a wild edible. The leaves and stems can be eaten raw or like spinach. The roots also contain significant starch, but it can be difficult to extract. Kudzu is also the most incredible cordage plant or vine I have ever had the privilege of using. The vines are similar to wire cable and can be tied into knots just like rope. It is incredibly strong and I once used a braid of three kudzu vines to repel from a cliff. Where there is kudzu, there is typically A LOT of kudzu in every diameter and length a survivor could ever need.

SKILL# 323
The Dakota Fire Hole

A Dakota fire hole is an underground fire pit that is discreet and performs excellent in windy conditions, such as in the windy plains of the Dakotas where the design originated. It is also an excellent fire lay for cooking. It begins with two holes 18 to 20 inches apart and 12 inches deep. The small hole should be dug upwind from the large hole, if possible, to help feed oxygen to the underground fire. Next, dig a tunnel roughly the length of your arm to connect the two holes. A chisel-notched digging stick works very well. Finally, build a fire in the larger hole; the smaller hole feeds the fire with air. Green sticks or a flat rock that doesn't fully cover the hole can be placed over the hole and used as a cooking or grilling surface.

The author cooks stew over a Dakota fire hole.

SKILL# 324
Make a Crayndle

Crayons are made mostly of wax. If ignited like a candle, the paper wrapper of a crayon burns just like a wick. The melting wax soaks into the paper and functions very similar to a traditional cotton string wick. One crayon will burn approximately 30 minutes! You never know when you may need to use a crayon to provide light, warmth or extended flame in a survival scenario.

Crayon paper wrapping burning like a candlewick.

SKILL# 325
Make a Beast Match

Grind up the match heads from a bunch of wooden matches into a fine powder and mix in some water to make a paste. Then take small matchsticks made from split fatwood (resin-rich pinewood) and dollop a big glob of match-head paste about ¼ inch around by 1 inch long onto the end and let it dry for at least a day. You can strike these just like regular matches – except now you have a beast match.

SKILL# 326
Urban Fire Log

A decent fire log can be made from rolled up scrap cardboard. Start by rolling one piece of cardboard into a tight tube. Then, roll another layer onto this one. Continue the process until you've reached the desired diameter, and prevent it all from unrolling by twisting wire coat hangers or some other kind of wire around it. For a longer burn, increase its density by sandwiching ¼-inch thick layers of newspaper or book pages in between the cardboard layers.

SKILL# 327
Tree Blazing for Survival

If you're lost, it's imperative to blaze a trail when traveling. This is to help you find your way back if necessary, and also to help rescue crews track your movement. One method of trail blazing is to shave the bark from trees. The contrast of the light-colored inner bark wood with the dark exterior bark makes a trail marker almost impossible to miss. When blazing, it's important to mark both sides of the tree, each with a different pattern to represent the route both to and from camp. A traditional blaze consists of one hash mark leading away from camp and two hash marks leading back to camp. The easy way to remember this is when you look back TO camp you should see TWO blazes on the trees you've marked.

SKILL# 328
Carry Fire With the Apache Match

An Apache match is made by cocooning a red-hot coal inside of multiple layers of fire tinder and bark. By allowing in just enough oxygen to keep the coal alive – but not too much to light it back into open flame, one can carry a fire-starting bundle at the ready for many hours.

Start by forming a tightly packed, fibrous tinder bundle. My favorite tinder to use for the Apache match is shredded cedar bark. Next, surround the tinder bundle with pieces of bark to form somewhat of a tube shape. Finally, use some kind of cord to wrap around the tubular bundle to hold it all together. Your job while traveling will be to make sure it's getting enough oxygen to stay alive – but not too much to ignite the bundle. When the destination is reached, open the bundle and blow it into a flame.

The author made this Apache match with cedar bark.

SKILL# 329
How to Make Snowshoes

Start by cutting 10 green saplings that can yield a ½- to 1-inch diameter straight section as long as you are tall. Next, split the top and bottom from four 12-inch long sections of seasoned or green sticks that are 2 inches in diameter. This will yield four 1-inch thick by 12-inch long planks that are flat on top and bottom. Stand all saplings on the ground with the thickest end down and mark each one at your waistline. Lash one of the four planks across five of the saplings using this mark as your guide – the thick ends of the saplings will be at the bottom and the thinner ends at the top. Space the saplings approximately 2 inches apart. Once lashed together, place the ball of your feet on the plank with your toes pointed toward the front and thin end of the saplings. Lash another plank where the heel of your foot falls. Tie the tips of the saplings at the front together using the whip lashing, and draw it upward using a string tied tightly to the front lashed plank. For added durability, lash another plank to the rear edge of each shoe.

Willow saplings are perfect material for making snowshoes.

SKILL# 330
Cordage Plant: Stinging Nettle

One wrong encounter with stinging nettle and you'll never forget it. The plant gets its name from the itchy, bumpy rash it can inflict on anyone who brushes up against the thousands of hair-like needles that cover the stalks. Despite this less-than-attractive feature, stinging nettle is a multifunctional survival resource. The tender young leaves are a very nutritious wild green when prepared like spinach, and the leftover water makes a very healthy tea.

Stinging nettle is also a great source for impressive plant fibers that can be used to make cordage. After clearing the stalk of the toxic needles by pinching and pulling it through a piece of fabric or a glove, gently smash the stalk flat and separate it into three or more sections. Then, carefully peel the exterior sheath of fibers away from the brittle stem wall. Once removed the fibers can be reverse wrapped (detailed in another skill description) into usable natural fiber cord.

Hypodermic needle-like stinging hairs covering the stalk of stinging nettle plants must be removed to access the cordage material underneath.

SKILL# 331
How to Rett Inner Tree Bark Fiber Cordage

The inner bark fibers from many trees make incredible natural cordage. These are the fibers that run directly underneath the outer bark and are oftentimes adhered to the inside of the outer bark layer. Separating them from the outer bark can be difficult, especially during certain times of the year – the easiest is spring when the sap is flowing.

The process of soaking tree bark to help release inner bark fibers is called retting. Retting is a rotting process and can take two to six weeks depending on the type of bark and water temperature. When the bark is ready you'll know it because the inner bark fibers will come off in long, wet ribbon-like sheets as you can see in the photo. Retting can be accomplished in containers or any natural water source such as a creek or pond.

The inner fibers from this walnut bark come off in sheets after retting in water for 14 days.

SKILL# 332
How to Tell the Difference Between Red Oak and White Oak

Little tidbits of knowledge like this play a big factor in the overall picture of survival. For example, in order to be effective at the next skill listed – foraging for acorns – it's important to be able to distinguish between the two main categories of oak trees – white or red. Telling the difference is really easy. Red oaks have pointed tips on the leaves and white oaks have rounded tips. I always remember this by saying, "Pointy things can make you bleed." Blood, of course is red. Pointy leaves = red oak.

SKILL# 333
How to Process and Eat Acorns

Acorns, the nut of the oak tree, are edible. If you take a bite from an acorn you'll soon spit it back out. The bitterness is nearly unpalatable. It comes from the high tannic acid levels, which also act as a natural pesticide to protect the acorns from being gobbled up by every insect and their brother. The acorns from red oaks are more bitter than those from white oaks – thus the importance of being able to tell the two apart. Luckily for us, we're smarter and more resourceful than insects. Tannic acid can be leached out by crushing the acorns and soaking them in a sock or bandana in running water, like in a creek or stream, for more than 24 hours. Then, the crumbs can be crushed further and boiled into a hot, disgusting gruel, or mixed with other ingredients to make bread or ash cakes. Remember, acorns are simply a singular ingredient, much like flour. Eating boiled flour is palatable but certainly not preferred.

SKILL# 334
Make a Plastic Spoon Fishing Lure

The bowl from a plastic spoon makes an impressive survival fishing lure. Start by trimming off the handle. Twist a hole through each end of the spoon with the tip of your knife. A wire or nail heated in the fire will burn a perfect little hole as well. Attach a swivel, if you have one available, to one end and attach the hook with a bit of wire loop to the other end – and you're ready to fish!

Improvised fishing lures can be made from a plastic spoon, wire and a fish hook.

SKILL# 335
Aluminum Foil Water Purifying Pan

A forked branch and a sheet of aluminum foil can be used to make a shallow pan to boil very small amounts of water in, very quickly. The pan is made by spreading the aluminum foil across the fork and then wrapping it under each fork. A slight depression is made in the middle that will hold just a couple teaspoons of water. When held over a hot fire, small amounts of water can be brought to a boil using this method in just a few seconds. This is a great alternative to water purification if a traditional metal container isn't available.

SKILL# 336
SUMACADE – Make a Refreshing Wilderness Drink

The red, fuzzy conical-shape berry clusters from the staghorn sumac tree are covered in malic acid, which has a very tart, tangy flavor. Since malic acid is water soluble, the berry clusters can be swished around in cold water for a few minutes to create a natural pink tangy drink similar to unsweetened pink lemonade. The berries do have little hairs on them that can irritate the throat – so it's best to strain the drink through a T-shirt or similar material. Two berry clusters per 1 gallon of water is a nice flavor ratio for my taste. The berries aren't ready for picking until late fall, but can be gathered throughout the winter.

The red fuzzy berry cluster of the staghorn sumac tree can be used to add a tasty flavor to water.

SKILL# 337
Use a Deer Jaw Saw

Deer teeth are designed to cut and chew grass and vegetation. The jaw from a deer, with the teeth intact, makes an excellent grass saw for harvesting large amounts of grass to be used for shelter thatching or bedding material.

Deer jawbone saw making quick work of grass to use for shelter thatching.

SKILL# 338
How to Make Rawhide in the Field

Rawhide is actually quite simple to make, especially when compared to tanned leather. The only ingredients necessary are wood ash, water, a container and the animal skin itself. It isn't even necessary to flesh the hide after you've skinned the animal. Simply mix about 6 cups of wood ash with enough water to completely submerge the hide in. This creates a lye solution that will break down the hide. Leave the hide submerged and mix it up twice daily until the hair comes out easily when you pull it. This typically takes around five days depending on the temperature – longer if it's cold out.

The next step is to use a blunt knife-shape tool made from bone, wood or metal to scrape the membrane, flesh and hair from the hide. After this is all done, soak the hide in two changes of fresh water for 24 hours and then stretch it out to dry in the open air. It can be laced at the edges or simply nailed open. Once dry, it's ready to store or use as desired for cordage or bindings.

SKILL# 339
Make a Wood Mallet

Mallets for hammering and pounding can be very useful survival implements for shelter building and wood splitting. A quick and easy mallet can be made by cutting a section of wood in the diameter you wish the mallet head to be. To make the handle, saw around the whole perimeter of the wood, but not all of the way through. The excess wood around the handle can now be batoned away as shown in the photo, leaving just the mallet head intact below the saw line. Finish the handle grip as desired.

The author quickly improvised this wooden camp mallet.

SKILL# 340
Make a Bone Splinter Fish Hook

A splinter of bone can be lashed with the figure 8 lashing to a carved wooden shaft as shown in the accompanying photo, to create a durable fishing hook. A bulbous end should be left at the top of the shaft to use the jam knot whip lashing detailed in a previous skill.

With just a little work, you can fabricate a primitive fish hook from a carved piece of wood and a sharp splinter of bone.

Shown here is the bone splinter lashed to the carved shaft using the figure 8 lashing.

SKILL# 341
Collect and Drink Dew

Dew is 100 percent drinkable without filtering, boiling or chemical treatment. It can be mopped up from grass and vegetation using bandanas, T-shirts or towels and then rung into a viable container. I have collected 3 gallons of dew in one hour using only two bandanas. You'll have to find an open area such as a small meadow or field to make this worth your effort since a thick, leafy canopy prevents most dew from settling within reach inside a forest.

Drinkable dew droplets on a blade of grass.

SKILL# 342
Practice Working With Rawhide

Rawhide is an incredible resource if you're lucky enough to have it. However, like working with most survival resources, using rawhide requires some practice for familiarity. Rawhide can be used for cordage, bindings, snowshoes, knife sheaths and even containers. It is soft and pliable when wet, but then hardens and shrinks as it dries. A convenient source of rawhide to practice with is from the pet isle at your local grocery store. Rawhide dog chews can be soaked in water and then unknotted to form a workable piece. Try cutting it into strips for cordage. Pay attention to how it behaves as it dries. Lash two sticks together with wet rawhide and watch how it shrinks and tightens. Practice this skill before you need it!

SKILL# 343
Make a Blanket Chair

Finding a good place to sit in an improvised survival camp can be very frustrating – especially when the ground is wet or snow covered. Here is a way to improvise a very comfortable seat in just a few minutes. The only parts you need are four sturdy poles and a blanket or scrap piece of durable fabric.

Cut three poles that are 6 to 8 feet long by 1½ to 2 inches thick, then cut the fourth of the same thickness and 4 feet long. Lash the three long poles together at one end using a tripod lashing. Fold the blanket or fabric in half, bunch the end together, and suspend this end with rope from the cross at the tripod lashing, and tied at the top with the constrictor knot. Next, insert the 4-foot pole through the unsecured fold of the blanket so that it sticks out at both ends, and rest it against two of the longer poles. Finally, sit down and relax!

A very comfortable wool blanket chair can be made from a standing tripod.

SKILL# 344
Boil Water in a Paper Cup

Yes, boiling water in a paper cup is possible. The water in the cup conducts the heat away from the paper fast enough to prevent it from burning. If it's exposed to direct flame, any paper that is not backed by water will burn. The best way to control how close the cup is to the fire is to insert a stick crossbar through the cup under the top rim and hang it from a tripod overhead. This allows you to change the height of the cup to match the ebb and flow of the fire.

Paper cups work great for boiling water over a fire.

SKILL# 345
Make a Funnel Fish Trap

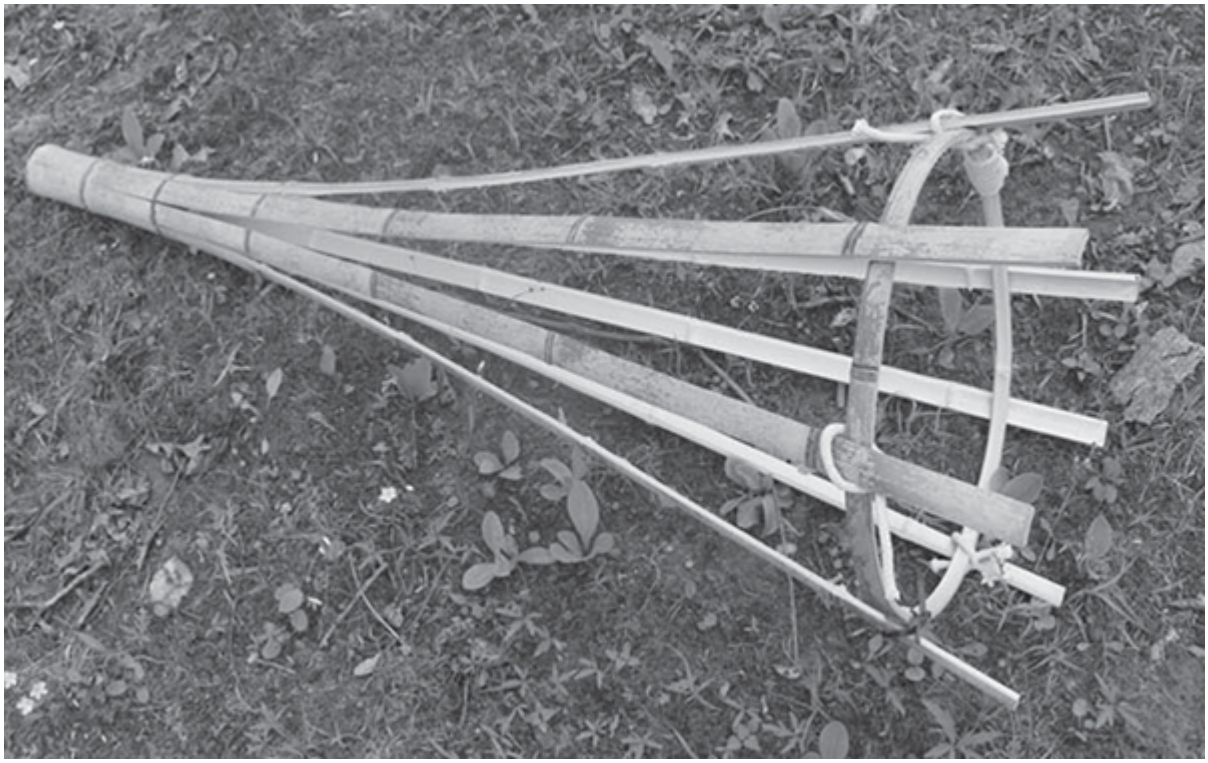
Funnel fish traps have been around for centuries and modern metal versions of them are still used by fishermen today. It is a large funnel or basket-shape trap that has a reverse funnel-shape cap. Fish can find their way into the trap via the funnel entrance, but aren't smart enough to navigate their way back out. The easiest way to build one is to stab an odd number of 48-inch staves into the ground in a funnel shape just like in the photo, and wrap flexible vines in an over-under pattern starting from the bottom up to the top. Then, do the same with a smaller funnel that will fit as a cap to the large end of the large funnel. Bait, such as crushed insects and worms wrapped in a small pouch made from scrap fabric, is placed inside, then the cap is tied in place and the trap is submerged in the water and tied off to a nearby tree or root. Check the trap daily and re-bait it with more worms, insects or entrails from previous captures.

Weaving staves are stabbed into the ground to form the frame of the trap body.

Here’s a finished trap complete with a smaller funnel cap, all woven with grapevines.

SKILL# 346
Make a One-Piece Split Bamboo Fish Funnel Trap

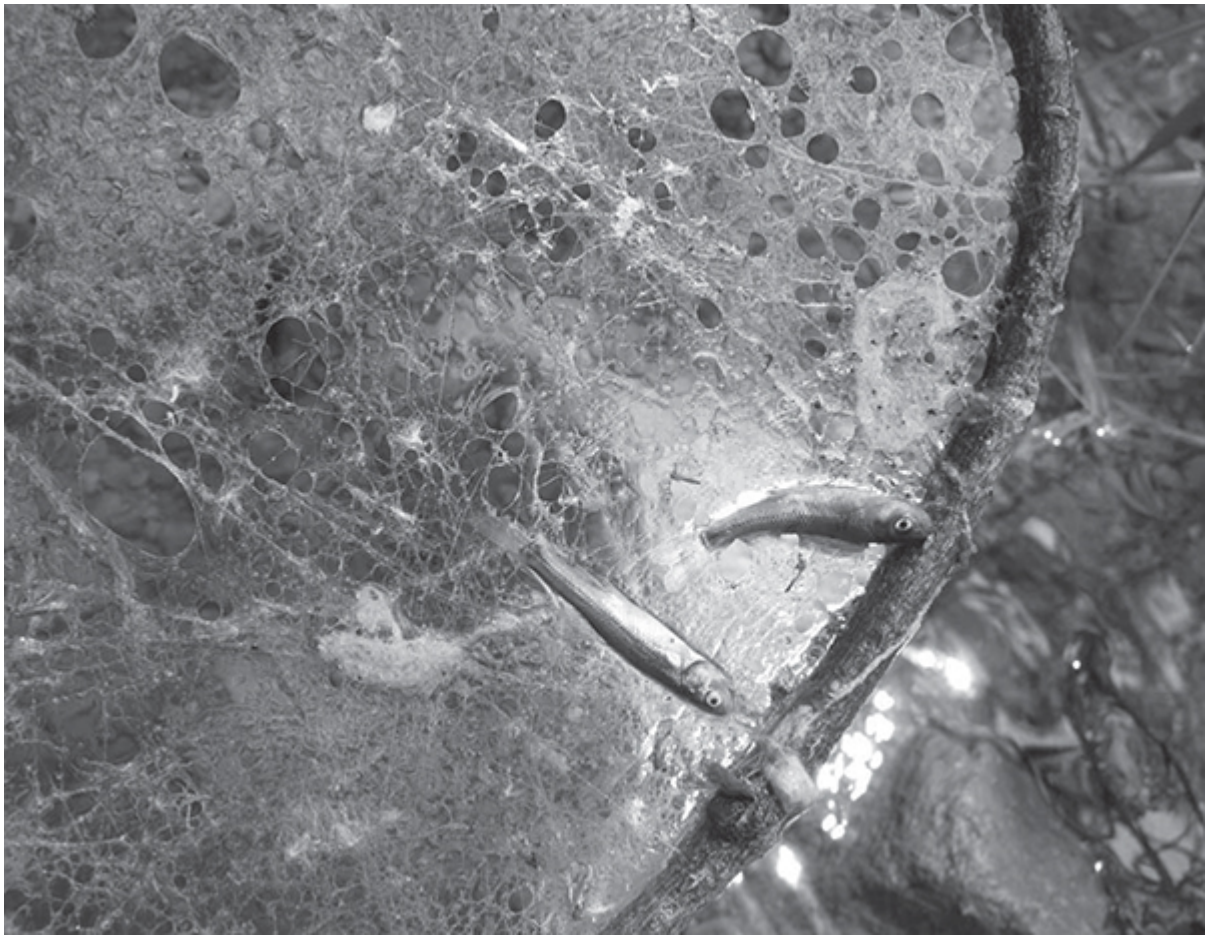
Bamboo is such an amazing survival resource. In fact, one 48-inch length of 2-inch diameter bamboo can create the entire body for a funnel fish trap. Begin by wrapping the bottom 4 inches tightly with cordage – a whip lashing works great. Next, split the bamboo into 1-inch splits from the top all the way to the bottom lashing. Once split, a circular brace can be used at the top to set the overall shape of the funnel, and vines or other bamboo splits can be woven in an over-under pattern to create the basket weave. The same process can be duplicated for the smaller funnel cap.



This split bamboo frame is ready for weaving.

SKILL# 347
Catch Fish and Tadpoles with a Spider Web Net

During certain times of the year – typically spring and fall – the forest is filled with dew-soaked spider webs in the mornings. This is the perfect opportunity to make a spider web fishing net. Cut a 48-inch flexible green branch from any live tree. It should be less than ¼-inch in diameter. After trimming the leaves and branches, bend the top down to form an oval net frame. Tie it in place with a small piece of twine or bark cordage. Next, walk through the forest and sweep 20 to 30 spider webs onto the frame. As you sweep them up you will see the net grow stronger and stronger. Once it is strong enough to catch a small pebble it is ready to sweep through shallow pools and along the banks of ponds and streams to catch bait minnows and tadpoles. These can then be used as bait to catch larger fish for cooking.



Spider webs make a great net for catching tadpoles and minnows.

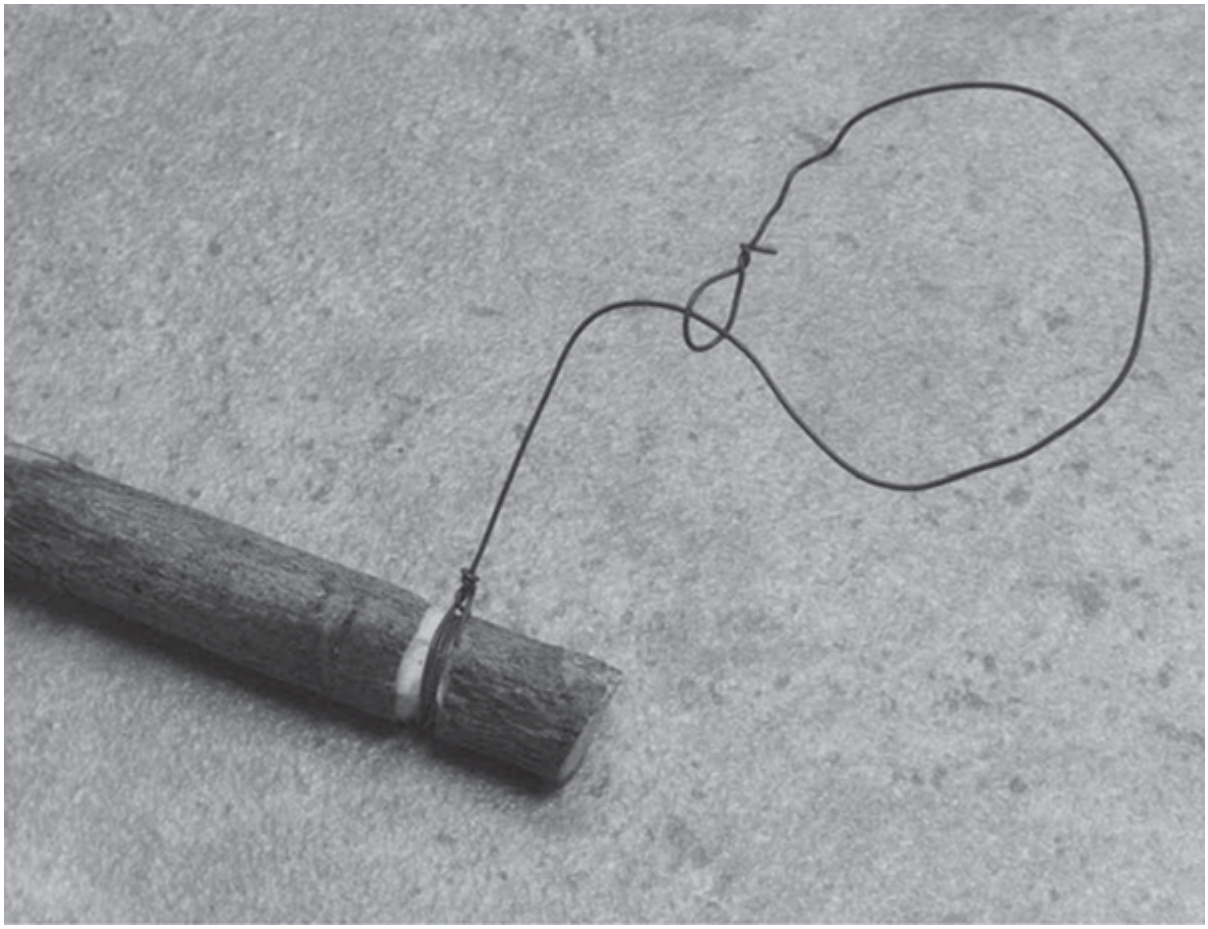
SKILL# 348
Identifying Venomous Snakes: Cottonmouth/Water Moccasin (Agkistrodon piscivorus)

The cottonmouth, also known as the water moccasin, is a very dark patterned snake, except for the inside of its mouth, which is pure white – hence the name cottonmouth. It's also called the water moccasin. The cottonmouth can grow up to 48 inches long and is considered the most aggressive venomous snake in North America. You'll find the cottonmouth in and around waterways from Virginia south and as far west as Texas. They spend much of their time in water, but can also often be found on banks and in transition areas. One should seek medical attention immediately if bitten by a cottonmouth.

Notice of the white interior of the water moccasin’s mouth.

SKILL# 349
Make a Lizard Stick

Lizards are edible, but can be nearly impossible to catch by hand. Traps, deadfalls and snares aren't effective either. A simple monofilament fishing line or wire noose on the end of a long stick is the best way to catch them. While they will quickly scurry off if you get too close, the long stick and noose won't faze them. Slip the noose over their head and pull quickly to cinch it down tight. Skin, gut, decapitate and thoroughly wash all lizards before cooking until well done.



Use a long stick with a thin wire noose at end for snagging lizards – a noose made from fishing line also works great.

SKILL# 350
Tell the Difference Between Lizards and Salamanders

Many salamanders produce poisonous secretions through their skin, which eliminates them from the wild edible menu. So it's very important to know the difference between lizards and salamanders. Salamanders have soft, moist skin and typically live in and around water or moist areas. Lizards have scaly skin. Also, lizards have claws on their toes and salamanders do not.

SKILL# 351
Dig a Seep Well

A seep well is a hole dug at least 3 feet from the edge of a stagnant, debris-covered or marshy water source. Seep wells can range anywhere from 1 foot to 3 feet deep. Water from the nearby water source will seep through the surrounding earth and soil and fill the well to the water table level, while the soil acts as a natural earth filter. A few hours must be allowed for the sediments to sink to the bottom, and then water can be collected from the top. The water will still need to be purified by boiling or another method before it's drinkable. This method can also be used to gather water in a low-lying, damp bend of a dry riverbed. Oftentimes, ground water still remains and will seep into holes dug just a few feet below the surface.

SKILL# 352
Use Leaves as Rain Collectors

Collecting rain without a tarp can be very difficult. When it comes to rain collection, it's all about increasing the surface area of the collection vessel. When using small containers such as water bottles, just setting them out in the rain is a waste of time. However, they can be filled in mere minutes by using large leaves. Leaves are designed by nature to funnel water directly to the roots of the tree or plant. You can use them the same way to funnel rainwater to your container.

Simply dig a hole and bury the container flush with the ground and line its perimeter with large leaves with the stem (a natural gutter) pointing into the container. Leaves that work wonderfully for this are palmetto, burdock, skunk cabbage, and any leaf larger than the palm of your hand. A hole lined with a scrap piece of plastic makes an even bigger container.

Here, large burdock leaves are used to increase the collection surface area and funnel rain into the buried container.

SKILL# 353
Urban Fire Pipe

An incredibly unique fire-starting tool can be made from a trashed plastic coffee can or similar container, a section of reflective mylar emergency blanket and an ink pen. First, cut out the center of the plastic lid so only the rim remains. Place a large square of reflective mylar blanket over the can opening and put the lid rim over it to make a tight seal. Next, puncture a hole in the side of the can and insert a small tube, such as from an ink pen. The kind with the rubber grips works great because the rubber creates an airtight seal at the seam. Mud or clay can also be used to seal around the tube if necessary. Finally, by sucking on the tube, a parabolic lens will be created as the mylar blanket is drawn inward by the suction. This can be used to focus sun rays on solar tinder such as punky wood, rabbit poop, char cloth, char coal, milkweed ovum, dried leaves or chaga fungus to create a fire ember.

The author sucking an urban fire pipe to create a reflective parabolic lens.

SKILL# 354
How to Carve a Feather Stick

Begin this skill by finding the driest stick you can that is about 24 to 36 inches in length an about 1 inch in diameter. It should be as free of knots, forks, splits and cracks as possible. While kneeling on the ground, start by pinning the stick between your chest and the ground. A glove or folded bandana can provide some padding at your chest. Slowly push your knife blade down the stick, carving away a thin curl of material with each pass. Continue to carve curls around the perimeter of the stick, stopping the knife just before the curl separates from the stick. New curls should be started on the peaks – as opposed to the valleys – of the cut line before it. Continue carving curls (feathers) up the length of the stick to create an abundance of fire-starting tinder.

The author carves a feather stick for fire building.

SKILL# 355
The Power of Leverage

Sturdy limbs and poles for shelter or camp craft projects up to 3 inches in diameter can be broken by hand between two trees growing close together. Place the piece to be broken between the trees and push or pull. Nine times out of 10, the stick will break exactly where it pivots against the tree. This is a field expedient way of accurately processing wood to meet your needs.

The author breaks a large limb between two trees to prove how much of a help it can be to process wood in a survival situation.

SKILL# 356
The Bucket Mousetrap

Although mice aren't a top choice for wild-game meat, they can make good bait – alive or dead – for a variety of larger game. You can make a very effective mousetrap from a 5-gallon bucket, a straight metal or wood rod, a water bottle or wheel, and some peanut butter or other attractive bait. Thread the wheel or water bottle over the straight rod so that it freely rotates with just a touch. Drill a hole on each side of the bucket with your knife so that the rod and spinning wheel or bottle is suspended in the center. Smear some peanut butter on the wheel or bottle and place a stick or board ramp to the edge of the bucket. When a mouse climbs up the ramp and jumps to eat the peanut butter the wheel or bottle will spin and dump the mouse into the bucket where it will remain until you come back to retrieve it.

Make an effective mouse trap from a 5-gallon bucket and a small wheel baited with peanut butter.

SKILL# 357
Signal for Rescue With a Torch Tree

A torch tree is a lone evergreen tree in a clearing that can be lit on fire to signal for rescue in the event of emergency; it must be a safe distance away from all other trees. The green boughs from pine, cedar, tamarack, fir and spruce all create billows of thick white smoke when burned. Never consume the time or energy to construct a signal fire when a torch tree is available. Ideally, a torch tree is an evergreen less than 20 feet tall that is at least the same distance from any other tree. The lower branches should be stuffed with dry, flammable material such as leaves, dried grasses, bark fibers and armloads of squaw wood from other evergreen trees in the area. At the first sight of a rescue plane or boat, light the bottom and the fire will quickly climb and create a signal that can be seen for miles, day or night.

SKILL# 358
Survival Knots: Prusik Knot

In its simplest form, the prusik knot is designed to grab hold of a rope. It is used in climbing to ascend and descend a rope because it can be slid along the rope, and also grabs the rope and prevents descent when pressure is put on it. It is also used to stretch tarps tightly across rope ridgelines. The prusik knot is basically a lark's head knot with two extra wraps – a loop of rope wrapped around another rope three times, coming back through itself each time. Watch video tutorial #21 for complete instructions at: www.creekstewart.com/365-book-videos.

SKILL# 359
Canopy Shelters: The Tarp Tent

A tarp tent is made by forming a traditional tent shape over the top of a rope ridgeline using the evenk hitch and quick release tautline hitch, or a ridge pole utilizing a square lashing on each end between two trees. If the tarp is large enough, a floor can be folded under to act as a moisture barrier. A prusik knot is used to pull the peak of the tarp taut along the rope ridgeline just like in the accompanying photo.

Improvised tarp tent made from a poncho.

SKILL# 360
Cook an Egg in Hot Ashes

A fortunate survivor may be lucky enough to find a nest of duck eggs while scouting the bank of a nearby pond. Bird eggs are edible in all stages of development and can be easily cooked in the hot ashes of a campfire. It's important to note HOT ASHES and not HOT COALS. Hot coals will cause the egg to crack.

First, trim a small circle on the top of the egg by pecking through the shell with the tip of your knife or a sharp rock. The circle should be at least as big as a pencil eraser and no larger than a dime. Place the egg, with the circle up, at the edge of the fire surrounded by hot ashes. The egg will cook from the bottom up, so once the egg within the visible circle is cooked, it's done! If you have any available, fresh herbs, salt and pepper can be mixed in with a thin stick before cooking to make a mini one-egg survival omelet.

Cutting a vent hole in the top of an egg prevents it from cracking when cooked in the hot ashes of a fire.

SKILL# 361
The Difference Between Pine, Spruce and Fir

First, let's eliminate pine. Pine needles grow in bunches of two, three or five. Spruce and fir do not. Distinguishing between spruce and fir needles is also really simple. Just remember – F is for FLAT. Fir needles are flat and spruce needles are round. You can roll spruce needles between your fingers.

SKILL# 362
Make Sure to Cut Your Y Fork Right

There are many different wilderness scenarios that call for a forked Y stake, including cooking and shelter building. When choosing a Y fork stake or pole, select a pole with a shape that resembles the top of a K, rather than that of a Y, as shown in the photo. The main pole should be straight, with a forked branch to the side. This allows the stake or pole to be hammered without splitting, which is what ALWAYS happens with a Y-shaped stake.

Notice the main upright of each forked stick is used for pounding into the ground.

SKILL# 363
Poisonous Plants: Poisonous Hemlock (Conium maculatum)

Poisonous hemlock resembles wild carrots and ferns, and ingesting it can be fatal. Symptoms include respiratory paralysis and convulsions. Poison hemlock can grow up to 8 feet tall and is readily identified by its purple spotted stems. The leaves are lacy and fern-like with a triangular shape. It blooms big clusters of tiny white flowers and is found throughout much of North America.

Poisonous hemlock.

SKILL# 364
Survival Traps: Squirrel Pole

Animals are the masters of energy and calorie conservation. When given the choice, they will almost always take the path of least resistance. In the case of a squirrel foraging on the ground, it would much rather climb a tree by way of a slanted bridge from the ground to the trunk than run all the way to the base and climb straight up the tree.

A hungry survivor can take advantage of this instinct by placing a series of nooses along a slanted pole leaning up against the side of a tree favored by squirrels such as hickory, oak, walnut, pecan, butternut and beech. While running up the slanted pole to reach the trunk a squirrel will become snared and strangled in one of the nooses. Wire nooses are preferred because they must stand upright along the top of the slanted pole.

SKILL# 365
Flashlight Fire

The reflective housing beneath the lens of most flashlights makes an impressive solar fire starting tool. This highly reflective parabolic lens can be used to focus sun rays onto tinder such as char cloth, chaga fungus, deer poop, punky wood or milkweed ovum to create an ember that can be placed in a tinder bundle and blown into flame. Remove this lens from the flashlight and insert your tinder on a toothpick-size stick through the hole where the bulb would normally be. The focal point is normally just a few inches from the bottom of the lens. Vehicle headlights also work in this same fashion.

The author uses a flashlight reflector to smolder punky wood into a fire ember.

Conclusion

I've been learning and teaching survival skills most of my life. I consider learning self-reliant skills to be a privilege and teaching them to be a responsibility. As you continue, or maybe just begin, your study of survival skills, I would offer you four last nuggets of information – words of advice if you will.

First, find a knife you love. Your knife is one of the most important survival tools and you should absolutely be in love with your knife. There are many "knife experts" in the world but the only thing that matters about your survival knife is that you love it. One of my favorite survival knives cost me $3 at a yard sale. When you find your knife soul mate, take care of it. Maintain it by oiling the blade and handle as well as sharpening it after each use in the field.

Second, don't get caught up in the notion that you have to own hundreds of acres of land or be stranded in the middle of nowhere to practice survival skills. It's easy to be discouraged by limited access to wild places and thus conclude you can't practice these skills. There will always be a reason not to do something worthwhile. Don't let limited resources be your excuse. I've spent thousands of hours training right in my own backyard for many of the skills I teach. The most important part of learning a survival skill is the actual DOING of the skill. Reading, watching and listening will only get you so far. No excuses – get some dirt time!

Third, as you prioritize your time and efforts when it comes to studying survival skills, start with fire. Other than properly dressing

yourself, fire is the most important survival skill. It can help regulate core body temperature, boil and purify water, cook food, signal for rescue, keep insects and beasts at bay and make tools. When you're alone and scared in the woods, fire is your best friend. Master fire first and then move on to shelter, water and food. Consider picking up a few of my Pocket Field Guides that cover a variety of fire-starting techniques at www.creekstewart.com for an in-depth study of fire starting.

Lastly, share what you learn about survival with someone else. I've found that teaching what I know about survival skills is the most rewarding aspect of what I do. Knowing that I'm sharing information with someone that could potentially save a life is a powerful thing. Also, by teaching someone else a skill, you in turn develop unique insights into and a greater understanding of that skill. Survival skills are now as important in our modern world as they have ever been.

With these words of advice and the previous 365 survival nuggets I have no doubt your study of survival will be worthwhile, rewarding and enriching. Send your own survival nuggets, stories and feedback to me at creek@creekstewart.com – a good teacher is a better student.

Remember, it's not IF but WHEN.

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