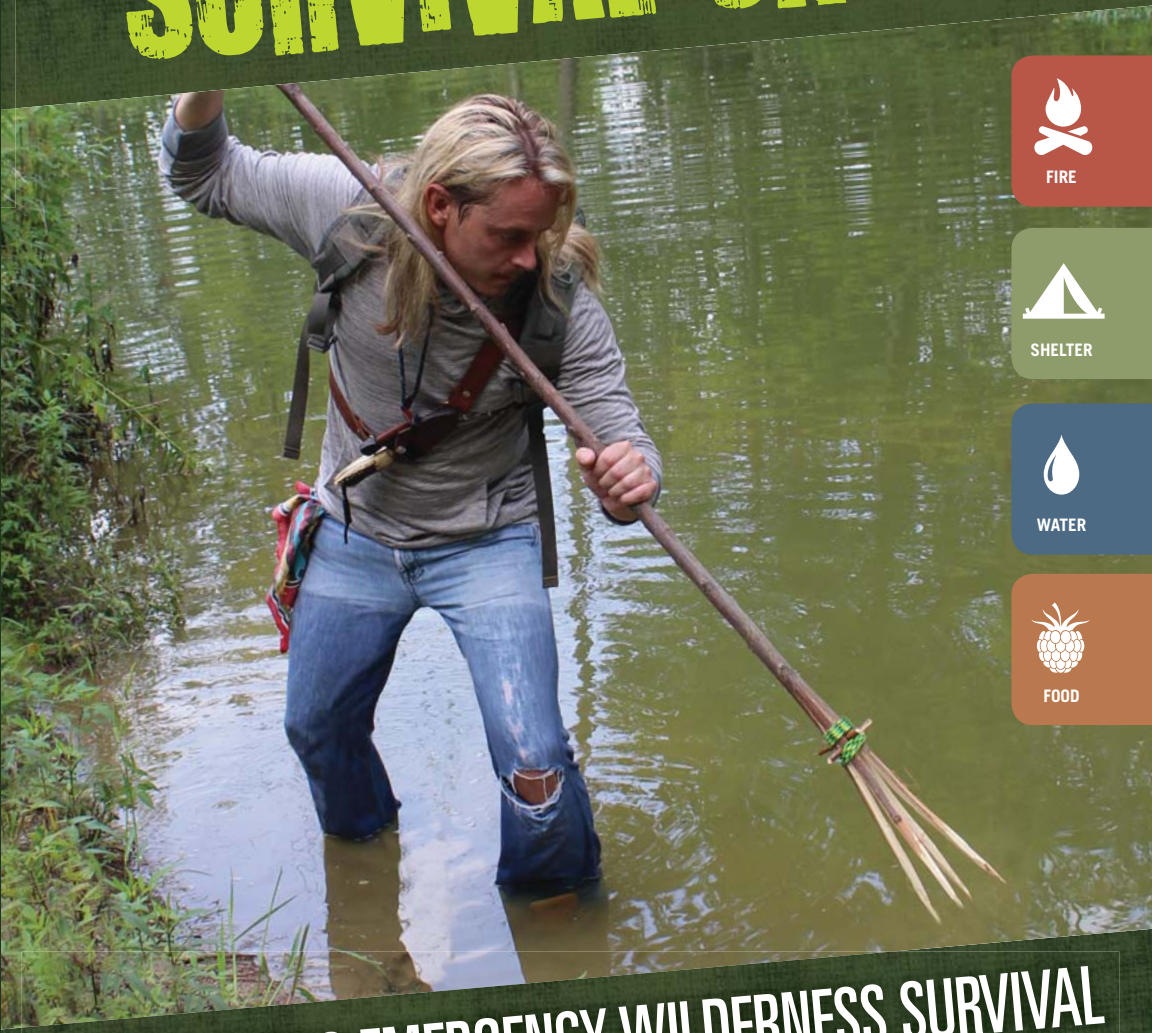
BUILD THE PERFECT BUG OUT SURVIVAL SKILLS



FIRE

SHELTER

WATER

FOOD

YOUR GUIDE TO EMERGENCY WILDERNESS SURVIVAL

Creek Stewart

BUILD THE PERFECT BUG OUT SURVIVAL SKILLS

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INTRODUCTION

For a run-down of what you'll learn in this book, watch the video at:
willowhavenoutdoor.com/btpbos-introduction.

TO MY KNOWLEDGE, a book has never been written that deals specifically with Bug Out Survival Skills. There are books about Bugging Out (including my own two books, *Build the Perfect Bug Out Bag* and *Build the Perfect Bug Out Vehicle*), and there are many books about wilderness and urban survival skills. In this book, I mesh these categories to create a guidebook for learning and practicing a set of survival skills that I believe have particular importance during a Bug Out survival scenario.

BUGGING OUT: DEFINED

The term *Bugging Out* refers to the decision to abandon your home due to an unexpected emergency situation—whether natural or caused by man.

BUG OUT BAG: DEFINED

A Bug Out Bag (BOB) is a self-contained kit designed to get you through at least seventy-two hours of independent survival while on the journey to your destination, often called a Bug Out Location (BOL).

I Already Have A Bug Out Bag. Do I Really Need Bug Out Skills?

Survival gear does not equal survival skills. I see this firsthand at my Bug Out training courses. Some students come with the best gear and intention, but when I unexpectedly remove a key piece from their Bug Out Bag, such as their tent, water filter, or fire starter, it becomes a completely different scenario altogether. Many are not prepared to deal with the unpredictable reality that a Bug Out scenario might present.

NOT AS YOU'VE IMAGINED

When disaster strikes, there is only one guarantee: *It will not happen as you've imagined.*

We must prepare to expect the unexpected and plan for a worst-case scenario. What if your tent is damaged, stolen, or lost, and you have to spend a night in freezing-cold temperatures? In extreme conditions, humans can only survive three hours without shelter. What if you use your fresh drinking water faster than expected and your water filter malfunctions? This can lead to your organs, brain, and muscles malfunctioning in less than two days. What if a river crossing soaks your fire-starting materials and you need to get a fire going to keep your family safe and warm? Will you know what natural resources to look for?

Just because you've packed a Bug Out Bag doesn't guarantee you'll be able to access it in a time of evacuation. Mother Nature doesn't care about your schedule or commute and

will show you no mercy. Going to get your Bug Out Bag might not be possible. You may very well have to Bug Out with very limited supplies and be forced to scavenge resources along the way. If so, your Bug Out Survival Skills had better be up to the test.

The entire premise of this book assumes your Bug Out Bag(s) is lost, stolen, or somehow inaccessible. This means the survival burden automatically shifts to one that is *skill dependent.*

Don't forget—you still have to keep moving. Just because you are experiencing unforeseen setbacks doesn't mean you have more time. The clock is ticking, and you must still manage an incredibly important Bug Out specific survival priority—*time*.

TIME IS OF THE ESSENCE

By definition, a Bug Out is a time-sensitive event. I've never heard of an emergency evacuation where a sense of urgency did not exist. In fact, most of them incite a panicked rush of stress and chaos. This is exactly why Bug Out Bags are prepared in advance and are ready to grab and go at a moment's notice. There may be no time for packing and thoughtful decisions. When disaster strikes, it's imperative to travel to a safe destination as quickly and deliberately as possible. Bug Outs are not camping trips. They are not extended survival scenarios, such as being stranded on a remote island. They are not vacations. Simply put, Bug Outs are a life-and-death survival journey from Point A to Point B, and the sooner Point B is reached, the better. Movement is life.

I've taught wilderness and urban survival skills for nearly half my life, and I can testify firsthand that many of these skills are not conducive to a survivor who is *on the move and in a rush* to get to a destination. Many survival skills, especially primitive wilderness skills, can take a lot of time, care, and patience and are more of long-term solutions. Working with natural and limited resources is not easy and oftentimes can't be rushed. This makes teaching Bug Out specific survival skills challenging. The skills have to be effective, field expedient, and flexible.

MANAGING EXPECTATIONS

I've always believed that managing expectations is a key foundation in any successful relationship. Our relationship—between reader and writer—is no different. This book is part Bugging Out, part urban survival, and part primitive wilderness skills, all with a Creek Stewart flair.

First, let me say that if you've read any of my other survival books

or articles, you are bound to see some redundancy. However, I wouldn't attempt to write and sell this book if I didn't believe that I could offer something unique in the survival-skills sphere. I believe that teaching survival skills under the specific confines of Bugging Out is interesting and challenging. I've tried my best to make sure that every skill I present meets the following criteria:

- **TESTED AND EFFECTIVE:** First, the skills must work. I have personally done each of these skills and can attest to their effectiveness in the field.
- **FIELD EXPEDIENT:** You can't spend all day on a certain skill. It defeats the purpose of a Bug Out. The skills presented in this book can be worked and deployed in a time-sensitive manner.
- **FLEXIBLE:** Because you'll likely be working with and using scavenged, natural, or limited resources, you must be able to get to the end goal using a variety of resources or methods.

Throughout this book, I focus on what I call *survival principles*. In order to become truly proficient with a particular survival skill, whether it be building shelter, finding water, starting fire, or sourcing food, it's important to focus on principles and properties rather than specific details. Understanding the principles behind why a certain skill works allows you to potentially modify that skill based on available resources and tools.

INNOVATION: YOUR MOST IMPORTANT BUG OUT SURVIVAL SKILL

If you had exactly everything you needed, would you still be in a survival scenario? Not having exactly what you need to survive is what defines a survival situation. The ability to use what you have to get what you need defines the outcome of a situation. One of your most important survival skills is *innovation*. In fact, if I could pick one word to describe the theme of this book, it would be *innovation*. In the following pages, I outline how to meet basic human survival needs (shelter, water, fire, and food) using a mishmash of tools, resources, and skills that could all be encountered during a Bug Out scenario.

MAKE YOUR OWN LUCK

If you rely on luck during a Bug Out survival scenario, you're screwed. Studying survival skills is in essence making your own luck, and I like that concept. Blind luck is for bingo, not Bugging Out. This book is all about making your own luck. Let's get started.

1 BUG OUT SURVIVAL MENTALITY

For a run-down of what you'll learn in this book, watch the video at: **willowhavenoutdoor.com/btpbos-chapter-1**.

BUG OUT SCENARIOS CAN HAPPEN in the blink of an eye. Think I'm being overly dramatic? Turn on the evening news and count how many stories relate to natural or man-made disasters—wildfires, mine collapses, earthquakes, floods, acts of war, tornadoes, hurricanes, terrorism. Real people are affected by these situations every day, and often there is little to no warning.

The fear, panic, and chaos that surround an emergency evacuation can be brutal on the mind. It's hard to imagine how you will react when it happens. This is not an average day at the office. The first thing that matters in the minutes after your world gets flipped upside down is how you will handle the situation mentally. The mental reaction to a Bug Out scenario will define everything else.

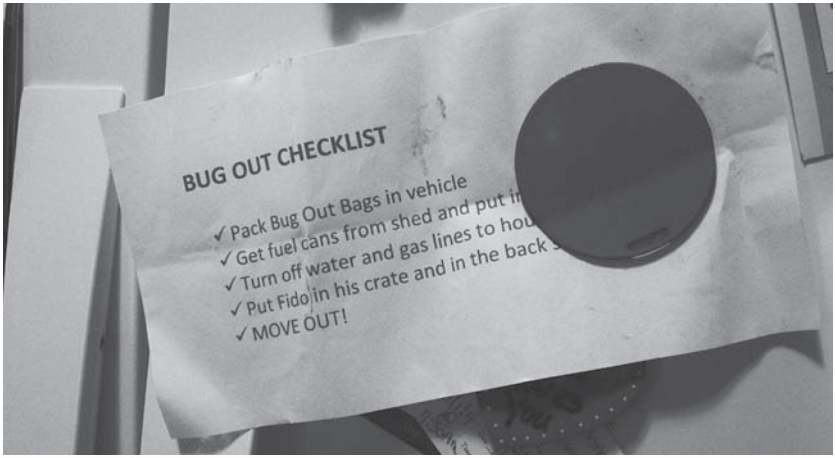
The first chapter in every survival-themed book should be about *attitude*. Your survival mentality will have a huge impact on the outcome of the situation. Attitude is the rudder that steers your ship. It can keep you focused on a deliberate course of action, or it can send you crashing into the rocks. Though invisible, your mentality is the most powerful force behind getting out of a Bug Out situation alive. It can also be your worst enemy. If you let fear and panic overcome logic and reason, you are signing your own death sentence. When you fail mentally, the rest of your body follows suit.

SURVIVORS HAVE GOALS

The first step in any survival situation is to set goals. The goal of any Bug Out scenario is to get to a predetermined safe destination—your Bug Out Location (BOL)—as fast as possible. In a survival situation, aimless wandering is a waste of valuable time and energy. This is why you must prepare Bug Out Bags and make important evacuation decisions in advance. Many people panic when thrust into a survival scenario. Panic leads to poor, and potentially fatal, decisions. Goals help reduce panic by giving you clarity, pushing you forward, and helping you focus on specific tasks. A Bug Out checklist is a great example of making use of goals in an evacuation. This can be as simple as the checklist below kept on the refrigerator. The point is that goals (in this case a checklist) keep a survivor moving forward mentally and physically.

Sample Bug Out Checklist

- Pack Bug Out Bags in vehicle
- Get fuel cans from shed and put in trunk
- Turn off water and gas lines to house



Bug Out Checklist on refrigerator

- Put Fido in his crate and in the back seat
- *Move out*

New goals may have to be set and revised during an emergency evacuation. Clear, concise, well-communicated goals help people (especially children) stay focused. Goals, even small and seemingly unimportant ones, reduce ambiguity and, therefore, reduce fear. I heard a story once about two soldiers, a private and a sergeant, who were hunkered down in a foxhole waiting for reinforcements to arrive. The private began to panic, and the sergeant told him to clean his weapon. When he finished, the sergeant told him to do it again. The private's simple task of cleaning his weapon was a goal that brought order to a place of total chaos and kept him from losing it completely.

Survivors set goals and pursue them relentlessly. Instead of just "going with the flow" of a situation, survivors strive with purpose to achieve meaningful goals. How can you expect to go anywhere if you haven't first chosen a destination?

SURVIVORS ARE BRAVE

Bravery is a prerequisite to survival. Cowards are only successful at failure. Brave people are not fearless. They simply decide to stare fear in the face and press on anyway. Bravery is not the absence of fear but rather the ability to overcome fear and persevere through it.

Fear is an innate survival instinct that heightens our senses. It is a good thing when kept in check. Uncontrolled, it is overwhelming and contagious. Understand that you will

probably be scared during a Bug Out scenario. Fear is your ally.

Survivors are not only brave for themselves but for others as well. No one follows a cowardly leader. Surround yourself with brave people. Sometimes you must *decide* to be brave even when everything in you wants to be scared. What your mind decides, your body will follow.

SURVIVORS ARE POSITIVE THINKERS

Sun Tzu, an ancient Chinese military general, once said, "Victorious warriors win first and then go to war, while defeated warriors go to war first and then seek to win."

Everyone has moments of self-doubt. It's natural to question yourself. Every survival battle begins in the mind. You must first win over your mind before you can expect to conquer any circumstance. Survival is 90 percent mental and 10 percent physical. Stay positive and stay alive!

Victors understand that attitude determines destiny. It has been said that whether you think you can or you think you can't, you're right either way. Negative expectations will always produce negative results.

SURVIVORS DON'T GIVE UP

I have a flag hanging at Willow Haven that reads "Don't Give Up The Ship." This is a quote from 1813 by Captain James Lawrence of the United States Navy who commanded his crewmen to fight until the boat sank while battling the British warship HMS *Shannon*. He commanded this even while mortally wounded himself.

This flag reminds me how important "not giving up" is in a survival scenario. There are few situations in one's life when giving up equates to almost certain death. Bugging Out is one of those. "Don't give up" is far more than a cliché when it comes to survival. More often than not, it's the difference between living and dying.

SURVIVORS FORM ALLIANCES

There is power in numbers. A Bug Out team or vehicle convoy with your family or a group of close friends can be a huge survival advantage. Developing partnerships and alliances lets you share resources and skill sets with fellow survivors, whether that is during the Bug Out journey or upon arrival to a final destination.

Companionship and friendship are intrinsic human needs and make any survival scenario more bearable. The "lone wolf" strategy only works in the movies. An emergency evacuation is an "all hands on deck" situation. Everyone can play a role. Some people's skills may be more obvious than others, but it's important to find

the value that each person can offer in a survival scenario. Partnering with others can have many advantages. Below is just a short list of things to think about and potentially deal with during a Bug Out, and sharing these tasks among a team of people can have exponential survival payoffs. It is an incredible burden for one or two people to effectively execute all these chores.

- Packing vehicles (checking off the Bug Out List)
- Navigation
- Security (keeping an eye out for potential threats)
- Communication (inbound and outbound)
- Food prep/cleanup
- Setting up camp (if applicable)
- Caring for children/sick/elderly/disabled
- Carrying children/infants if forced to walk
- Caring for pets/animals
- Sleeping in shifts
- Building fire
- Refueling
- Signaling for rescue (if applicable)
- Transporting gear (physically carrying supplies)
- Changing tires
- Clearing road rubble

SURVIVORS ADAPT AND IMPROVISE

There is a reason why the United States Marine Corps has popularized the motto, "Improvise, adapt, and overcome." They are keenly aware that the ability to adapt and improvise is absolutely necessary to success. If you cannot or do not improvise, your chances of survival are slim to none. Improvising is more of a mental skill than a physical skill. It is the ability to think creatively and use the resources you've been given to meet your basic survival needs. If you had everything you needed to survive, you wouldn't be in a survival situation. It's the lack of what you need that makes things dangerous. Using *what you have to get what you need* is the key.

Many items can be creatively used for multiple purposes, and being able to identify these uses is a very important part of your Bug Out Survival Skill Set. I highlight many examples throughout this book for creatively using resources to meet survival needs. For some, thinking outside the box when it comes to meeting survival goals can be a challenge. Begin by looking at an everyday item and list three ways it can be used directly or indirectly to meet one of your basic survival needs: shelter, water, fire, or food. You may even surprise yourself.

SURVIVORS PREPARE IN ADVANCE

Survivors try to eliminate risk by preparing for the unexpected. This is exactly why you prepare Bug Out Bags, Bug Out Vehicles, Bug Out Locations, and now, your mental and physical Bug Out Skills. There still are no guarantees, but it does increase your chances. I grew up in Boy Scouts, and they say it best with their no-nonsense survival motto, "Be prepared." If you prepare for the unexpected, you absolutely increase your odds of survival. I don't care what anyone says to the contrary.

SURVIVORS LIVE FOR WHAT THEY LOVE

I'll bet you aren't putting in all of this effort to just save yourself, are you? Most of us imagine taking care of our friends, family, or maybe even a stranger we'll save along the way. Most people I've met who are preparing for disaster are not selfish but rather are focused on loved ones who may not understand or foresee the potential threats. Some prepare for these people despite the fact that these loved ones openly mock them for their preparedness.

The human spirit is strongest when it's fighting for something or someone else. There is something powerful about fighting for something greater than yourself. Survivors know *why* they want to live. The greatest survival stories of all time are motivated not by the fear of dying but by the fear of losing what makes life worth living. For some, that is a cause; for many, that is a person or family. Search your soul and find that one thing other than yourself that makes surviving your only option. The flame for this will burn long after the one for yourself has gone out.

SUMMARY

Attitude during a Bug Out is important, but sometimes the will to live just isn't enough. You need real physical and mental skills to step in to pick up the slack. Talk is cheap. Now is the time for action.

No matter what causes you to Bug Out, your core survival needs will always remain the same—shelter, water, fire, and food. I call these the Core 4. The vast majority of this book revolves around how to meet these basic needs in a variety of resourceful ways during a potential Bug Out. I write a lot about wilderness and natural resources, but I also interject many improvised survival skills using modern materials, such as human trash or things you may be able to scavenge during a Bug Out.

In extreme conditions, humans can only survive three hours without shelter. This is where we will begin.

2 BUG OUT SURVIVAL SHELTER SKILLS

For a run-down of what you'll learn in this chapter, watch the video at: **willowhavenoutdoor.com/btpbos-chapter-2**.

A BUG OUT SURVIVAL SHELTER HAS ONLY ONE PURPOSE—to protect you from the elements during a stop along your Bug Out journey. The two elements of protection are shielding and insulating. *Shielding* is blocking out the wind, rain, snow, and sun. *Insulating* has to do with regulating core body temperature—keeping heat in and cold out or vice versa. Fire, or at least some kind of heat source, often plays a role in shelter building and design, but we will discuss that later.

Spending the night in transit during a Bug Out is a last resort. Ideally, it's a direct trek to your destination without overnight stays. Disasters are rarely ideal. I don't consider spending the night in your car or camper or hotel a Bug Out *skill*. I don't consider setting up a tent a Bug Out *skill*. These are all perfectly fine Bug Out shelters but not the kind I have in mind.

Cliff ledge protected

The Bug Out shelters I have in mind are for when none of those luxuries are available. Imagine abandoning your vehicle and traveling on foot with limited resources and hardly any gear. What do you do for shelter then? Typically, improvised survival shelters can be very labor intensive—especially those built only from natural wilderness materials. I've spent hours building these types of shelters. In a Bug Out, you don't have hours. Remember what I said about Bug Out Skills in the Introduction? First, they must work. Second, they must be field expedient. And, third, they must be flexible. This means that the improvised Bug Out shelters I show you in this chapter can be done in a timely manner, can be made from a variety of resources, and they work. Before we get to the specific shelter designs, let's discuss choosing a shelter location.

CHOOSING YOUR SHELTER

During a Bug Out, there are six elements to consider when choosing your shelter location and design. Many underestimate the importance of choosing a good shelter location, and those who do often pay for it in one way or another. Here's some valuable advice I learned early in my survival-skills career: *Don't rush*.

Poison ivy on forest floor

Ant mound

Rushing leads to foolish mistakes that you will most certainly regret later. A rookie mistake in the shelter department could easily cost you your life, and that's a fact many people have learned throughout history. Below are the six elements to consider before you choose a shelter site or design.

1. Location Consideration: Dry

No matter what kind of weather, region, or environment you find yourself in, you must choose the driest possible shelter site. Wet and/or moist shelters kill people. If you are wet, you can develop hypothermia in temperatures as high as 50°F (10°C).

Remember, water travels downhill, so, typically, elevated areas are drier. However, a shelter located on the top of a hill can be very exposed, especially to wind. Try to find a middle ground. Southward-facing site locations are also drier because they receive sunlight as the sun travels east to west. Areas protected by cliffs, ledges, or tree canopies tend to be drier as well because they are protected from rain.

Avoid depressions, valleys, and low spots. Never camp close to running water, streams, rivers, or canyon valleys. Flash floods from areas upstream can raise water levels for miles downstream with little to no warning. A few years ago, several campers in Arkansas were killed when their campsite was suddenly overtaken by floodwaters. Nagging insects, such as mosquitoes, are always worse around water as well. Sometimes the smallest enemies can be the most devastating. I once heard a quote that makes this point very well: "If you think you're too small to make a difference, try falling asleep in a room with a mosquito."

2. Location Consideration: Survey for Natural Hazards

Flash flood areas mentioned above are prime examples of naturally hazardous areas. Other well-known hazards include:

- **POISONOUS PLANTS:** An allergic reaction to a plant, such as poison ivy, can be a devastating first-aid emergency to someone in a survival situation. A quick survey of the shelter location and a basic knowledge of poisonous plants can prevent this.
- **STINGING OR BITING INSECTS:** Biting ants, tarantulas, scorpions, and yellow jackets are all ground-dwelling critters that, in certain circumstances, can be downright deadly. The best rule of thumb is to thoroughly check the ground *before* making camp. Scrape away leaves and debris and make sure the ground is free of nests, holes, or mounds. Then simply pile the debris back on.
- **ROCK CLIFFS:** Falling rocks can be deadly. A good policy is to inspect the ground around any cliff you are considering. If it's littered with rocks, then it probably means rocks fall from that cliff. If there aren't any fallen rocks, then it's a safe bet. The heat from a fire can also cause loose rocks in cliff overhangs or caves to pop off.
- **WIDOW-MAKERS:** Big, dead limbs in trees are called widow-makers for a reason. You can be injured or killed by even a small limb if it falls

Rock cliff with fallen rocks

Widow-maker branches

from high up in a tree. Inspect any trees that you are considering sleeping under. If it has some dead limbs and branches, don't risk it. High winds can send those crashing down on your shelter.

3. Location Consideration: Shelter Near Resources

You need some resources to meet your basic survival needs. Below is a list of resources to consider when choosing your shelter site:

- **WATER:** Water is a precious resource and should always, if possible, be within a couple hundred yards (meters) of camp. Besides hydration, water may be needed for cooking, washing tools, or bathing.
- **BUILDING MATERIALS:** If the shelter design you've chosen requires building materials, it's smart to locate your camp near those materials. If you are building a cold-weather debris hut (discussed later), don't choose a campsite far away from dried leaves and trees. It will take a lot of energy to transport shelter-building materials even short distances.
- **FUEL:** It takes an insane amount of firewood to keep a decent fire burning through the night. If you are depending on fire for warmth, try your absolute best to strategically locate your shelter site near the largest amounts of fuel. Carrying firewood uses calories that at some point will need to be replaced, which can be difficult if food is scarce and your Bug Out Bag is unavailable.

4. Design Consideration: Shelter Purpose

The shelter style you choose should be heavily influenced by *why* you need a shelter. What is the purpose of your shelter? *All* Bug Out shelters are temporary for rest or refuge only. The primary focus of a Bug Out is movement, not sheltering. When you're sheltering, you're sitting still. If an evacuation persists over the course of several days, taking shelter for rest will become a necessity. The disaster itself may require you to seek shelter as well (e.g., extreme weather conditions).

There are no black-and-white rules to shelter configurations. Every scenario is different, which is why it's absolutely critical that you be able to improvise. However, learning some basic field-expedient shelter configurations for a variety of scenarios will give you a knowledge base to work from. Your creativity and on-hand resources will fill in the blanks. Mother

Nature may also be feeling a bit generous, but I'll discuss that in a bit.

5. Design and Location Consideration: Discreet

The two largest threats during a Bug Out are the disaster itself and other people, particularly those who have not made advance preparations. You may find it necessary to seek out a discreet shelter location to minimize contact with them. If possible, choose a shelter location away from "urban watering holes" such as trails, roads, restrooms, hospitals, convenience stores, pharmacies, port a-potties, emergency shelters, refugee camps, public water services, any establishment that contains food, banks, and gas stations. Oftentimes schools and churches are converted to mass housing areas. During Hurricane Katrina, rape, robbery, and exploitation were common in group evacuee shelters.

It may seem counterintuitive, but you want to locate your shelter as far away as possible from the traditional resources people will want and need. The vast majority of those evacuating from a disaster will not have the skills

Natural "calorie saving" Bug Our Shelter

Great Bug Out shelter site

Abandoned overgrown storage area

to survive away from these resources and, consequently, will congregate around them. Even though humans can survive three weeks without food, many will do unthinkable acts to get it after just a few days. Naïve survival ignorance will confuse hunger pangs for starvation, and panic will ensue. Panic and desperation lead to the degradation of the fine line that separates humans from animals.

Wilderness areas are a natural choice for temporary improvised shelters. Less obvious locations include cemeteries (creepy but desolate), abandoned buildings, industrial areas, buildings under construction, recreational areas with baseball diamonds and soccer fields, public parks, and inside storage facilities.

6. Design and Location Consideration: Energy Conservation

Energy conservation should be at the forefront of every survival decision you make—especially decisions about shelter. Building even a simple survival shelter can be a very labor-intensive task. I've worked eight hours of backbreaking labor building cold-weather debris huts that, in the end, gave me only the bare minimum shelter I needed. Working like this spends thousands of calories, and that will eventually catch up with you. I'm not suggesting that you be lazy, but rather make intelligent decisions that help you save time and energy.

THE COLD GROUND WILL KILL YOU

Almost all good survival shelters are built from the ground up. In a cold-weather environment, what lies beneath you is just as important as the roof over your head. The cold ground will suck the heat right out of your body. This is referred to as *conduction*. It is critical to minimize conduction when building your survival shelter. This is typically done with air space and/or insulation. Insulation is simply something that creates dead air space between you and the ground. It also makes sleeping much more comfortable. Examples of insulation include:

- Leaves
- Branches (dead or alive)

Newspaper in abandoned building

- Wood
- Newspaper
- Pine needles or pine boughs
- Grasses
- Sleeping mats/pads
- Cardboard
- Styrofoam

Our fancy mattresses and featherbeds are not only designed for comfort but also to insulate our bodies from the cold during chilly nights. My father slept on what is called a shuck bed until he was twenty-eight years old. A shuck bed is simply a mattress that is stuffed with dried corn shucks. It wasn't that long ago that people were using sleeping insulation very similar to the natural elements I discuss in this chapter.

Improvising your makeshift sleeping mattress can be easier said than done. There are three concepts I want you to understand. All are very suitable for a quick and dirty Bug Out survival bed.

Bedding Concept 1: Contain Loose Insulation

If you don't contain loose insulation, it will spread and dissipate as you sleep and move throughout the night. You'll be sleeping on the cold ground within a few hours if you're not careful. Loose insulation, such as leaves, pine needles, or even newspaper, is best contained by what is referred to as a post bed. Simply stake two logs parallel to one another and wide apart enough for you to lie between them lengthwise. Then fill this interior space with loose insulation material. The "posts" prevent the insulation from being pushed away throughout the night.

A hay bale could be torn apart to make the perfect wilderness bed

Stakes to prevent post from moving

Post bed filled with dead pine needles

Post bed filled with leaves

Bedding Concept 2: Herringbone Pattern

The herringbone pattern, named after the skeleton of the herring fish, is important to remember when it comes to arranging twig beds or bough beds. I read about this many years ago in an article written about Appalachian traditions by a woman who still made corn shuck beds the old way. She would twist the corn shucks together into bunches and tie them into a herringbone pattern using hay baling twine. She described how this helped to prevent the corn shucks from shifting and spreading while the person slept. She described how this pattern provided additional loft and springiness for added comfort as well.

The same is true with twig and bough branch beds. Fist-size bunches of springy (*live*) branch tips or evergreen boughs should be arranged in a herringbone pattern from top to bottom of your post bed. This overlapping pattern allows for maximum loft and comfort. Extra layers can be added in the high stress areas such as hips and shoulders. A few extra bunches at the top make a suitable pillow when covered by a piece of fabric.

Herringbone pattern

Live branch tips arranged in a herringbone pattern, notice the tips are pointed in and larger ends extend just beyond the post

Evergreen boughs arranged in a herringbone pattern with another post sandwiching them on top

URBAN SURVIVAL

REPURPOSE A CAR DASH SUN REFLECTOR

Repurpose a car dash sun reflector into a survival sleeping mat. Designed to protect a vehicle dashboard by reflecting the sun's rays, this mat can also be used to reflect body heat in a cold-weather survival scenario. It is not an insulator, only a reflector. Place it on top of your makeshift bed to recycle body heat. It can also be used to reflect heat from a fire when hung from the back of a shelter. These are available at many dollar stores if you want to include one in your Bug Out kit. They are more durable than your average emergency reflective survival blanket.

Dash protector used as reflective sleeping mat on wilderness bed

Dash protector hung from lean-to roof to serve as a fire reflector

URBAN SURVIVAL

MAKE AN URBAN BED USING WILDERNESS PRINCIPLES

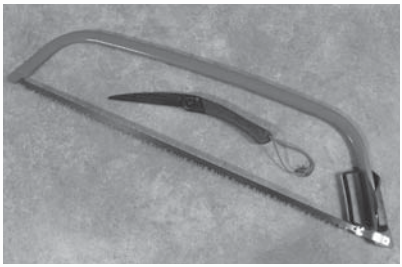
Newspaper can be twisted into bundles and arranged in a herringbone pattern to make an excellent insulative urban mattress. Concrete floors can literally become ice blocks in freezing temperatures. Notice the use of an old PVC pipe and cinder blocks to create a makeshift post bed.

Twisted newspaper in herringbone pattern

Bedding Concept 3: Raised Bed

There are several advantages to a raised bed. First, being off the ground allows the heat from a fire to better circulate around and under your body. I've found that in extreme cold, it is oftentimes warmer in a raised bed. Secondly, you may *need* to get off the ground for a variety of reasons. It could be wet, rocky, or uneven. Regardless of the reason, a raised bed is very easy to build. With a handsaw or bow saw (discussed in chapter five), you can easily cut the necessary wood in less than fifteen minutes.

First, build a log-cabin style frame that rises anywhere from 6"–24" (15cm–60cm) off the ground. I typically use logs varying in size from 4"–10" (10cm–25cm) in diameter. Once these are stacked as shown, use a jam knot to lash the corners.



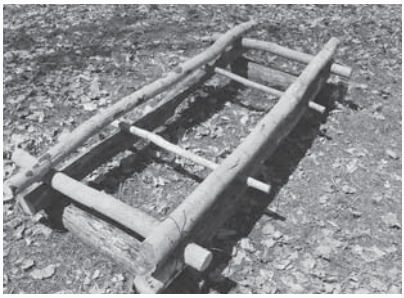
Bahco 36" (90cm) bow saw and folding saw

SURVIVAL QUICK TIP

KNOT TYING HIGHLIGHT

Learn how to tie the jam knot by watching this step-by-step instructional video: willowhavenoutdoor.com/jam-knot/.

Framework lashed at corners with jam knot



Framework with two repositionable crossbars inserted

Framework with saplings in place

Raised bed finished with live branch tips in herringbone pattern

Second, slide in two crossbars. These should be very sturdy pieces 2"–3" (5cm–8cm) in diameter. These can be repositioned for comfort later. I normally keep one behind the knees and one about at my lower back.

Then, fill the space with a layer of small ½"–1" (1cm–3cm) diameter flexible saplings that stretch longways from head to toe.

Lastly, place your insulation in a herringbone pattern on top of the saplings. Adjust the two crossbars for comfort.

CANOPY SHELTERS

Whether in an urban or wilderness environment, a canopy shelter is one of the most efficient survival shelters available. Of all improvised survival shelters, a canopy shelter is the quickest and requires the fewest number of calories to make. It is also incredibly effective against wind, rain, and snow. A canopy shelter can be erected over one of the previous mentioned bedding options during cold weather conditions, or a simple waterproof ground cloth can be used in

warm-weather conditions.

There is a method to the madness when setting up a canopy shelter. If you do it wrong, there is a good chance it could come crashing down in the middle of the night. In an extreme-weather scenario, this could be a fatal mistake. Properly setting a canopy shelter requires the use of a couple of very specific knots. But first, let's discuss canopy options.

The Canopy

A nearly infinite number of materials can be used to improvise a survival canopy shelter. Obvious choices are grommeted tarps that are designed for similar purposes. Less obvious choices include ponchos, plastic sheeting, garbage bags, canvas tarps, advertising banners, car covers, and boat covers.

The Cordage

I prefer to use 550 parachute cord for all of my canopy shelters, and the cord from just one survival bracelet is enough to erect a variety of improvised shelters.

If 550 paracord is not available, any strong cordage will work. You may have to source or even manu-

Paracord survival bracelets

URBAN SURVIVAL

USE AVAILABLE RESOURCES

Disasters often tear the siding from homes. Many homes are wrapped in a very strong, waterproof barrier of Tyvek sheeting. This is applied before the exterior is installed. Tyvek sheeting makes an excellent improvised canopy material. It can also be purchased at your local hardware store and cut to size for inexpensive tarps and ground cloths.

New commercial building covered in Tyvek sheeting

Evenk hitch

Quick-release taut-line hitch

facture your own cordage from scrap fabric, plants, vines, and trees. I discuss cordage in great detail in chapter five. There, I teach you how to source natural cordage as well as how to make your own improvised rope from a variety of materials.

The Knots

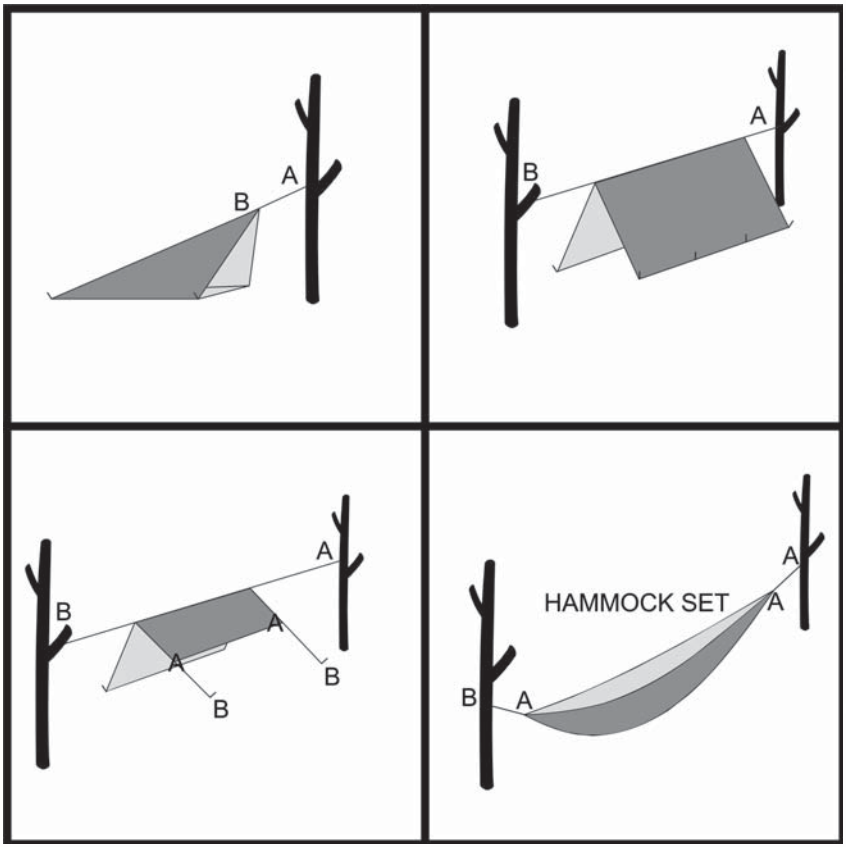
The knots are what ultimately separate an efficient canopy shelter from a complete 2A.M. disaster. I set every single one of my canopy shelters with just two knots: the Evenk hitch and the quick-release taut-line hitch.

The Evenk hitch was used by the Evenk people in Siberia to hitch their reindeer to trees. It is a simple hitch that can be tied in the dark and comes apart with one quick tug. It eliminates the frustration of untying (and ultimately cutting) tightly jammed knots in the morning.

I learned the taut-line hitch in Boy Scouts and later added the quick-release option to make untying a breeze. This knot is perfect for tightening a ridge line or staking out guylines to stretch out the corners or edges of a tarp.

To help better understand the use of the Evenk and taut-line knots, I've created a tarp illustration, on page 30, that shows the use of these knots in four different shelter sets, including a tarp hammock. *A* represents where the Evenk hitch is used, and *B* represents where the quick-release taut-line hitch is used.

I've never been a fan of teaching knots with photos. I believe video is the best way to teach these two knots, so I have recorded three videos to teach them to you. They can all be found at: willowhavenoutdoor.com/canopy-shelter-knots/.



Placement of Evenk hitch (A) and quick-release taut-line (B) with tarp

SURVIVAL QUICK TIP

SAVE YOUR GROMMETS!

High winds, which are very likely during a disaster, can rip corner grommets from even the best tarps. To prevent this, feed your cordage through the grommet and then tie it around a small, sturdy stick. Using a stick as shown reduces the stress on the grommets and prevents them from ripping out.

Cordage through grommet and tied around stick to prevent tearing

The Configurations

Your creativity is literally the limit when it comes to improvised canopy shelter configurations. I've taken a few photos of what I believe are the most realistic shelter sets. I also used completely different canopy materials for each.

I can't stress enough the importance of being able to quickly set up an improvised canopy shelter. I believe this is one of the most important

Tube shelter using scavenged advertising banner

Modified lean-to using scrap black plastic sheeting

Wedge shelter using scavenged tarp—one corner tied to tree and the other three corners staked to ground

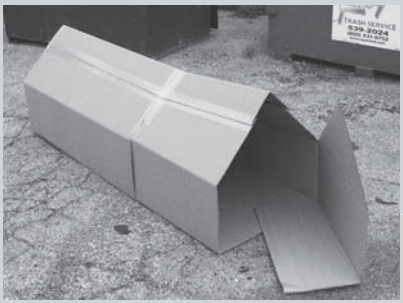
SURVIVAL QUICK TIP

NO GROMMETS, NO PROBLEM!

Many scavenged canopy tarps won't have convenient grommets for tying on guylines and ridge lines. But don't cut holes in your tarp for anchor points. They will surely rip out. Instead, wrap the corner of the tarp around a small rock and tie the cord around the rock. I've never had one of these tear out on me.

Small rock used as an anchor point for canopy shelter

and practical sheltering survival skills. Knowing the key knots makes all the difference. Don't expect a canopy shelter to make it through a rough night with a hack job in the knot department. However, even with all the right knowledge, you may not have the resources (canopy material or cordage) to make one. You may have to resort to using natural materials.



Cardboard urban Bug Out shelter

Cardboard shelter covered in trash for an Urban Debris Hut

URBAN SURVIVAL

SHELTER

Cardboard can be used to make a quick and dirty urban Bug Out shelter. The corrugated inner channels trap dead air space and create a very effective insulation barrier. It is also wind resistant. Ample amounts of cardboard boxes can be scavenged from trash or recycling bins, and they can be shaped into a tube tent with a few strategic cuts. Layer the bottom with several sheets of cardboard to prevent conduction.

SURVIVAL QUICK TIP

IMPROVISED HAMMOCK

The Evenk hitch and quick-release taut-line hitch can also be used to make an improvised tarp hammock.

Improvised tarp hammock

USE A TARP TO MAKE A SURVIVAL BOAT

While on the subject of tarps, I'd like to show you how to make a survival boat using a tarp, some cordage, and natural materials. You never know when or if you may need to make a water crossing. This knowledge could be the difference between moving forward and being stuck. Below is a photo tutorial showing exactly how to do it!

Lay your tarp flat on the ground.

Pile pine boughs or leafy branches in a circle about 12" (30cm) tall. This will be the diameter of your boat. Leave at least 1'–2' (30cm–60cm) of tarp around the perimeter.

Lay a gridwork of sturdy sticks (1"– 2" [3cm–5cm] in diameter) on top of the circle.

Pile another 12" (30cm) of green boughs on top, again in the circular pattern.

Wrap the tarp around the circle and tie it to the gridwork of sticks.

It floats! This tarp boat easily floats me (170 pounds [77kg]) and my BOB (35 pounds [16kg]).

SHELTER DESIGNS USING NATURAL COMPONENTS

The Debris Pod

Normally I would never mention the words "debris hut" and "field expedient" in the same sentence. Debris huts are traditionally very time- and labor-consuming and do not fit the criteria I've outlined for Bug Out Survival Skills. However, I have modified a traditional debris hut design to be not only fairly fast to build but to also be *more* effective. I've taught how to build debris huts for over fifteen years, but this is the first time I have ever taught this version. I call it the debris pod. This shelter, unlike many cold-weather survival shelters, does not depend on fire for warmth. It is heated by body heat only.

A debris pod, like all good survival shelters, starts with a good bed. In this example I am using a combination of dead leaves and pine needles. Notice how I've created a post bed as described earlier.

Next, cut twelve flexible branches around 3' (1m) long. These don't have to be thick. I've found that the diameter of about my pinky finger works just fine. Jam six branches into the ground on the outside of your bed and six on the other side directly across from one another.

Bend the branches opposite each other toward the center and twist

Debris pod post bed using evergreen boughs

Small saplings pushed into ground

Branches twisted around each other to create arches above bed

Emergency survival blanket draped over the arch branch tunnel

Completed debris pod with Creek inside

them around each other. This will make a series of arches over your bed. Ideally, you will have between 1' and 2' (30cm–60cm) of clearance between your bed and the underside of the arches. You shouldn't need any cordage to do this.

If the debris you'll be covering the shelter with is heavy and wet, it may be necessary to weave in several flexible vines or branches over and under the arches along the length of the bed to create a stronger arch tunnel. This step isn't necessary when using dry leaves like in this example.

An emergency survival blanket (or even a scrap piece of plastic) draped over the arch tunnel at this stage makes a *huge* difference in how warm this shelter is. It also helps to create a no-leak roof. The survival blanket can be tied in place or pinched between the twisted saplings.

Finally, the entire tunnel is covered and piled with forest debris for insulation. This can be leaves, grasses, pine needles, or anything else that's light and fluffy. Just as in an attic, loose insulation traps dead air space and prevents body heat from exiting and cold air from entering. An emergency blanket layer over the tunnel reflects all body heat back into the tube-shaped shelter area. When using an emergency survival blanket, a debris pod shelter can be as much as 40°F (4°C) warmer than other survival shelters in similar conditions—even without a fire!

The best way to plug the entry is to simply backfill it with debris once you are inside the shelter.

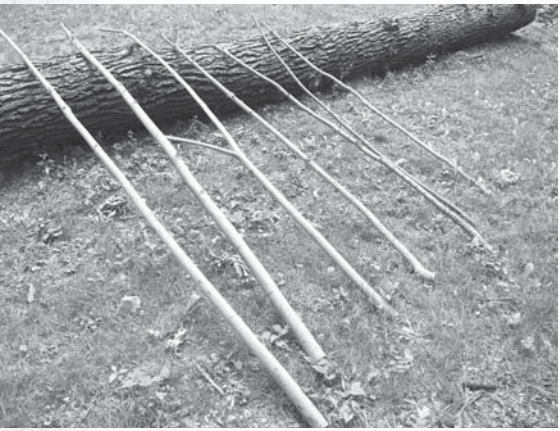
When built in a wilderness setting, this shelter is also very difficult to see from a distance. Because it's made from forest debris, it blends into the surrounding area very well. It can also be easily modified to sleep two or even three people by making the branch archways wider and slightly higher. A single-person debris pod should take less than two hours to build from start to finish, including the bed. The main advantage to this particular shelter style is that it *does not* require a fire to stay warm. No fire also means not needing to collect firewood, which can be used in large quantities to keep a survivor warm in a fire-dependent shelter design.

Lean-To Shelter

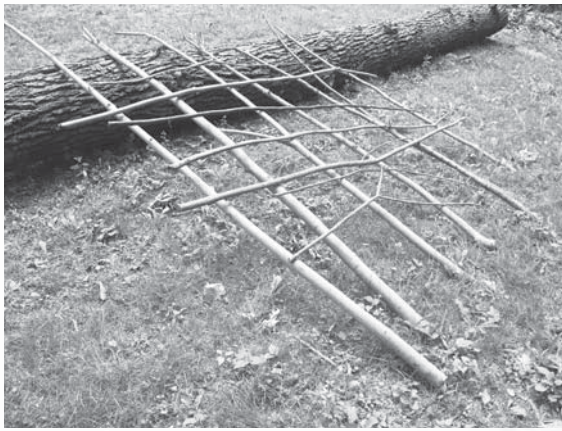
Lean-tos are the quintessential survival shelter and are by far the easiest to erect. It's really as simple as leaning a framework of poles against a ridge line and then covering that frame with bark, leafy branches, grass, or a combination of all three. This shelter offers little warmth without a fire, but it will protect against wind, rain, and dew. Thus, lean-tos are fire-dependent shelters without proper bedding in cold-weather environments.

I've never been a big fan of using complicated weaving and thatching methods to create a roof because, quite frankly, I don't plan on staying in any survival shelter for too long, and that's a lot of energy and time to spend for only a few nights of shelter.

One good rule to remember when building lean-to shelters is to face the slanted roof toward the wind and the open sides away from the wind. This helps to keep wind from blowing directly into your shelter—the top is both a roof and a wind



Lean-to framework



Lean-to framework with roof

USE A SQUARE LASHING TO SET A LEAN-TO RIDGEPOLE

Sometimes natural ridge lines do not exist. It's easy to set a quick ridgepole between two trees using a sturdy pole and some cordage. However, like setting canopy shelters, the ropework makes all the difference. The best knot for this job isn't actually a knot, it's a lashing called the square lashing.

First, tie a clove hitch to anchor the lashing to the ridgepole.

Now, wrap the rope around the pole and tree in an over/under pattern three complete rotations, as shown in step 2. This is called *wrapping*.

Next, wrap the rope tightly two complete times around the rope in between the tree and pole. In this step you are only wrapping around rope. This is called *frapping*.

Finally, finish off and anchor with a clove hitch.

Entire structures and towers can be built using just this one lashing. This lashing is as strong as your rope and ridgepole. It will not fail you.

Step 1

Step 2

Step 3

Step 4

Finished lean-to with grass roof

Heavy duty lean-to

screen. Because of the slanted roof design, most lean-tos are very efficient at shedding rain and snow. I've found that the steeper the roof angle, the better a lean-to performs at shedding rain. Flatter roofs will allow for more seepage and dripping. A steep roof will reflect more heat from a fire as well. When it comes to size, I normally make lean-tos only wide enough and deep enough to fit my bed and supplies. This is the most efficient use of energy and resources.

I've used a fallen tree to create a shallow-roofed lean-to. This style is very simple to create and also provides protection from two sides. One of the open sides can easily be

Two lean-tos meeting at same center ridgepole create a tent-like structure

Lean-to built up against rock wall

A lean-to built between the roots of two fallen trees

The large leaves of burdock make excellent roofing materials

Grove of wild skunk cabbage, enough "shingles" for a hundred lean-tos

Lean-to shelter using skunk cabbage leaves

Completed skunk cabbage lean-to

covered with a pile of sticks, leaves, or branches. Rain is not coming through this roof.

After your roofing material is in place, it's a good idea to add a few heavier branches on top to keep the roof in place in case the wind picks up. I learned this the hard way—in the middle of the night during a mild storm—years ago.

Mother Nature will provide many lean-to thatching materials in temperate months. Tall grasses, like those pictured, are excellent streamlined "roof shingles." Leafy branches, such as those found on maple trees, work equally well. Pine boughs are

Lean-to against a tree with stacked rock fire reflector wall

Urban cinder block fire reflector wall

Urban 55-gallon metal trash container repurposed as a fire reflector

SURVIVAL QUICK TIP

LAYERING LEAN-TO ROOF

When piling on roofing materials, such as leaves and forest debris, be sure to start at the bottom (or lowest part of the roof) and work your way up to the peak. This order of layering is most efficient for repelling water because it ensures that lower levels of the roof (those closest to the ground) are under the upper levels. This arrangement allows the rain to hit the peak of the roof and roll straight down the sides.

Long stakes driven in the ground to hold wood stacked to create a reflector

Three large logs stacked and held in place by long log on the diagonal

also an effective roofing material. If you are lucky enough to locate some large-leaf plants, such as wild skunk cabbage or burdock, it may take only a few handfuls of tennis-racquet-sized leaves to waterproof an entire lean-to shelter. Second to man-made materials, these are some of the best waterproofing plants I've used.

When you are depending on a fire for warmth, a fire reflector can make a lean-to shelter much more comfortable. A fire reflector is simply a makeshift wall opposite the shelter

Roof over two large rocks

Another rock-walled pit shelter

that helps to reflect heat back toward the lean-to shelter. It can be made of rocks, wood, or even a garbage can. I've photographed several examples of makeshift fire reflectors.

Pit Shelter

I use the term *pit shelter* to define an area that can be made into a shelter just by putting on a roof. A depression in the ground is a great example. Two trees that have fallen parallel to each other and two large rocks side by side are other examples.

Pit shelters typically have flat roofs. Consequently, they aren't the best shelter choice if it's raining. However, they do very well when it's snowing. The snow actually helps seal the flat roof and hold heat in. A plastic sheet or scrap piece of plywood could be all you need to make a quick-and-dirty pit shelter. Because the walls are typically solid (either earth, rocks, or wood), this shelter is great at holding heat as well. This type of shelter also benefits from a fire out front with a reflector wall.

Wigwam-Style Shelters

The framework of a wigwam shelter is made from bending and twisting saplings around each other, very similar to the arch tunnel of my debris pod.

Start by jamming the fat end of eight flexible saplings into a circle pat-

Saplings pushed into the ground, forming a circle

Two saplings twisted together

All saplings twisted and tied together

tern. Each sapling should be directly opposite another. In this example, the saplings I used are approximately 8'–10' (2m–3m) long and 1" (3cm) in diameter at their fattest end. They do not need to be very big around. If the saplings are difficult to stick into the ground, pound in a pilot hole using a short stake first.

Weave more saplings or vines in and out of the existing sapling rafters. I normally layer all the weaving material about 1' (30cm) apart from each other to create a nice, even gridwork.

A traditional wigwam would have been covered with large chunks of bark or thatched with grass. Both of these methods are very time-consuming and not at all practical in a Bug Out survival scenario.

Smaller sapling/vine woven in place

Half wigwam thatched with mountain laurel branches

Close-up of wilderness branch clip used to hold garbage bag to framework

Large tarp draped over framework and staked in ground

BUILD A SUPER SHELTER

If you've never heard of a Super Shelter, then you're in for a real treat. This is a concept popularized by Canadian survival instructor Mors Kochanski. (Mr. Kochanski has an excellent, inexpensive e-book on Amazon.com detailing this shelter that I highly recommend.) It's one of the smartest shelter designs I've ever seen and has become one of my favorites. Believe it or not, a small fire in the front of this shelter can keep the interior as warm as 60°F (16°C), even on freezing cold nights. It perfectly combines wilderness resources, modern tools, and fire physics. The shelter can be constructed in less than one hour.

Build your bed (as described earlier). Your bed can be a post bed or a raised frame bed.

Using the wigwam technique, build a half wigwam dome over your bed frame.

Cover the entire half dome with an emergency blanket (I'm using two blankets in this example). The use of wilderness clips (shown earlier) is very helpful.

Cover the entire structure with clear plastic. The plastic must be clear to allow the infrared heat from the fire to pass through.

How does it work? A small fire in front of a Super Shelter will radiate heat through the clear plastic front. The heat waves reflect off the top and back of the half dome down onto you and your bed where they are absorbed. The plastic lets heat in and also captures it inside the shelter area—similar to a greenhouse effect. A large fire isn't necessary, and this shelter design is incredibly efficient in the use of wood and, thus, expenditure of calories.

As you can see, the wigwam framework to this point looks very similar to a dome tent framework, and this is exactly the application that you may want to consider if a canopy is available. This could make a very effective shelter against rain and, if covered well enough, could be efficient in cold temperatures as well. You could cover this with scavenged plastic or tarps. Notice the photo of the improvised clip made from a freshly cut branch to hold plastic onto the frame.

SUMMARY

Don't overcomplicate shelter. It can be a very time-consuming and calorie-sucking task if you let the grandeur of a shelter you've seen in a movie cloud your judgment. Shelter is about *function*, period. It doesn't have to look pretty, and no one is going to judge your design skills. Remember the basics and keep it simple.

Super Shelter raised bed frame (same as raised bed frame discussed earlier)

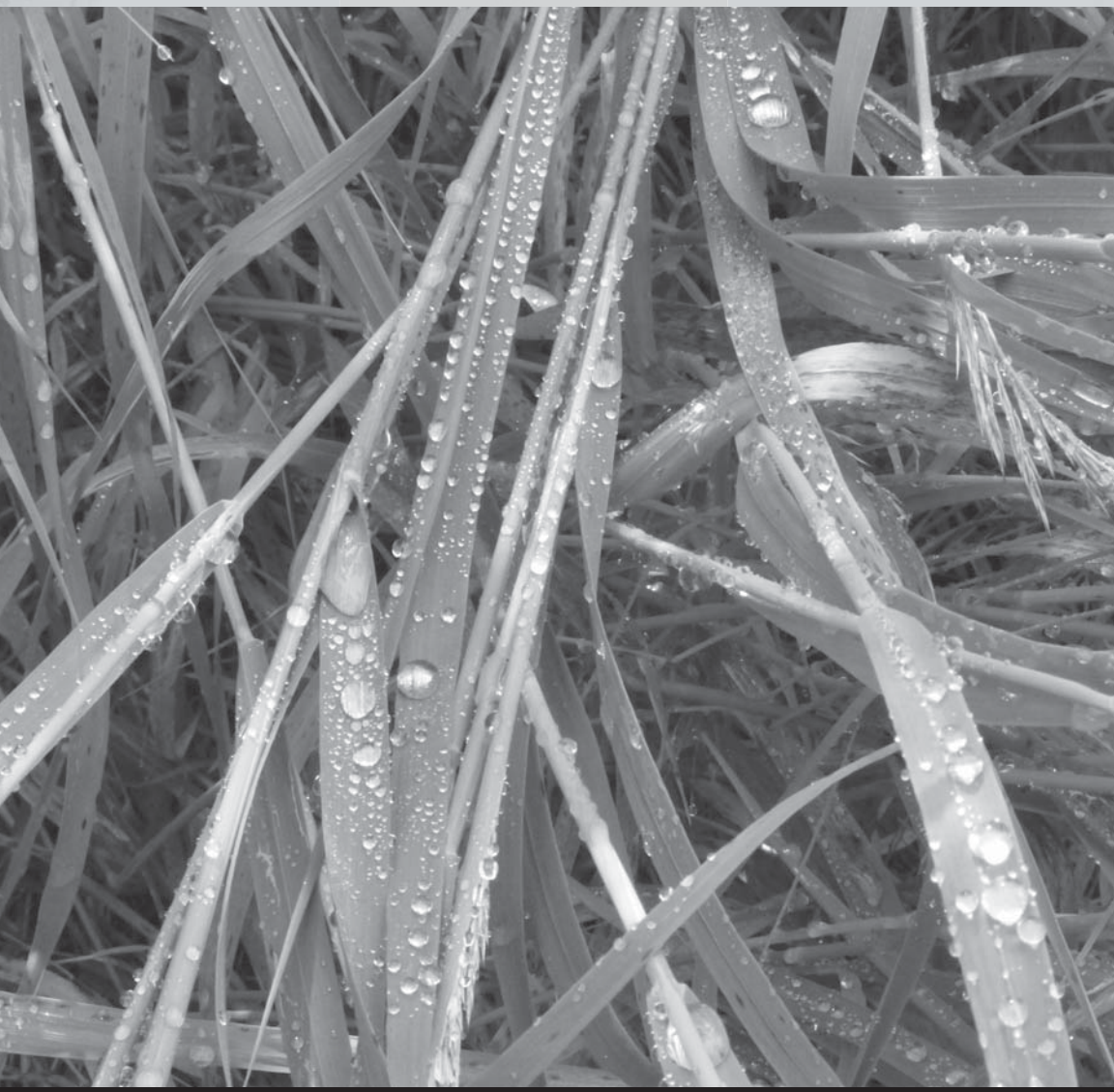
Half wigwam dome over bed frame

Half dome covered with emergency survival blanket

Entire structure covered with clear plastic

Four Super Shelters soaking up the heat from one central fire

3 BUG OUT WATER SKILLS



For a run-down of what you'll learn in this chapter, watch the video at: **willowhavenoutdoor.com/btpbos-chapter-3**.

THERE'S A REASON I SUGGEST packing 3 liters (3 quarts) of fresh drinking water in your Bug Out Bag. In extreme conditions, you can live for only three days without water. Over 70 percent of the human body is water. Even a small percentage of water loss can have devastating consequences. Yes, you can live three days without water, but after the first twenty-four hours without water, you are going to be pretty miserable. After forty-eight hours, you'll be crippled with cramps, light-headed, and weak. Soon after, you'll begin to hallucinate, and major organs will slowly begin to fail. If you wait too long, it might be too late. Don't wait until you are dehydrated to hunt for water. If you are thirsty, you are already dehydrated.

This chapter is designed to help you find, collect, and purify water in the event that your fresh drinking water is gone or inaccessible and you don't have any of the fancy filters and pumps traditionally packed in a BOB to quickly and easily purify more.

First, you must be able to find water. This, in some environments, is easier said than done.

LET NATURE BE YOUR GUIDE

When it comes to finding water, nature is a good guide, if you know what to look for. Remember the following principles to let nature guide you to a water source.

Water Travels Downhill

Water takes the easiest route available (the path of least resistance) and travels downhill. Gravity causes water to find its way from high places, like snowy mountaintops, to low places,

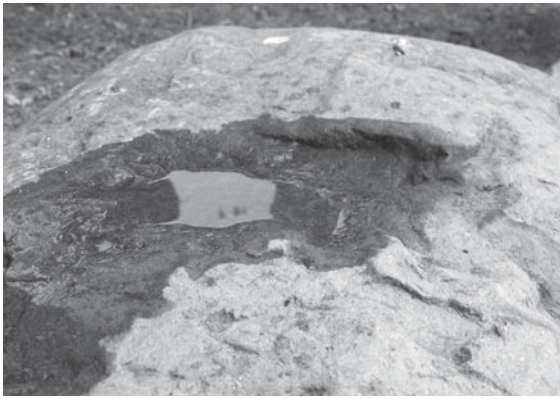
The still-damp outside bend of a dried-up stream

Water collected in a cup formed by the leaves of a plant

like lake beds and valleys. Your first move toward water should be downhill.

Running water will cut a groove in the earth—even in solid rock. There may not be running water where you are, but grooves in the earth's surface may lead you to where it went. Water leaves tracks, just like an animal, as it snakes its way downhill in search of a resting place in some kind of depression. That depression can be a tree stump, a divot in a rock canyon, a pond at the base of a mountain, a deep pool in the bend of a shallow stream, or even the largest depression on earth—the ocean.

Even dried-up streams can yield water. Damp outside bends in a dried-up riverbed may still have ground water beneath the surface. If you dig a hole, called a seepage well (detailed later), in these areas, ground water may seep into it for you to collect.



Water in a solid rock depression

Animal den

Animal scat

All Living Things Need Water

Living things can lead you to water. You aren't the only one whose survival depends on water. Water gives life to everything from plants to animals.

ANIMALS: A game trail is simply a path created by an animal (in hunting, *game* is the term used for the animal you are after). Animals seek the easiest routes to wherever they

are going, and they often follow the same path from their dens or nests to their feeding and watering grounds, thus creating a trail. Almost all game trails lead to or from a food or water source. If you find a game trail, you are not far from water. Follow it, preferably downhill. While you are at it, set a snare (discussed in chapter six) on the trail as well.

A nest, burrow, or den is a good sign that water isn't far off. Animals follow the survival rule you learned in chapter two: build shelter near resources (food and water). Try to follow a trail leading away from an animal's home. There's a good chance it leads to water.

Other signs of animal activity may also be indicators of water. Tracks, scat, or rubs can indicate animals are traveling through the area. You must try your best to read every detail of the landscape.

VEGETATION: Lush, green vegetation is a sign of water. Plants will grow wherever there is water, even in the middle of the most barren deserts on earth. Scan the horizon and look for patches of growth that seem better nourished. Spotting a green oasis from afar can save you hours of searching. It may be very subtle, with growth slightly more abundant and colorful, but areas with water will look different from areas without it.

Animal tracks

BIOLOGICAL THREATS IN WATER

You've finally found water, but don't take a big gulp just yet. Simply finding water is only half of the hydration equation. Water can save your life, but it can also turn you into a barfing, cramping, aching, dying mess. *Drinkable water* is the key. There are two kinds of survival water: water that needs to be purified and water that doesn't. The devil is in the details, and it is critical that you know the difference. Your life depends on it.

Unfortunately, your waterborne enemies are invisible to the naked eye. Biological threats (microorganisms) are your greatest water threat in a wilderness environment. Other threats include hazardous pollutants and heavy metals, which are more of a concern in large cities or along

farms and fields that use fertilizers and insecticides. Ingesting water infected with nasty little critters can quickly turn your insides into a gastrointestinal nightmare. From vomiting and cramping to diarrhea, thirst will quickly become the least of your worries. Without medical attention, your chances of surviving the effects of drinking contaminated water would be remote at best. There are three categories of biological threats in water:

PROTOZOAN CYSTS: These are the largest of the three but still invisible to the naked eye. They include things like Giardia and Cryptosporidium.

BACTERIA: These guys are slightly smaller than cysts and include popular critters such as E. coli, salmonella, and cholera.

VIRUSES: The smallest of the three, this lovely grouping includes some real winners like hepatitis A and polio.

Needless to say, you don't want to take a gulp of any of them. Like I said, there are two categories of survival water: water that needs to be purified (because it might be contaminated with one of the three threats above) and water that doesn't need to be purified. Here's how you can tell the difference.

WATER THAT NEEDS TO BE PURIFIED

Basically, any open water source that you find in nature needs to be purified. This includes water sourced from ponds, streams, crevices, open pits, holes, puddles, rivers, lakes, and hollow stumps. If it has had the opportunity to touch the earth, an animal, or

SURVIVAL QUICK TIP

SEARCH FOR SYCAMORE

The sycamore tree typically grows near water. Sycamore trees can be a sign that you are close to a water source. The sycamore is easy to identify by its unmistakable bark coloring and pattern. It looks like winter camouflage with a white base and tan camo patterns. The photo shows a sycamore leaf against its very unique bark.

Sycamore leaf and bark

an insect, then it should be purified. Though still not safe to drink, running water is considered better than nonmoving, stagnant water. If collecting water from a stagnant pool is your only option, there is a method for getting the best you can from this source—that's the seepage well.

Seepage Well

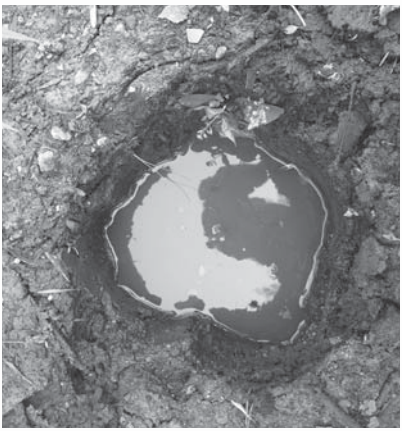
A seepage well is a hole dug in the ground at least 3' (1m) from the edge of the stagnant water source. You may have to dig the hole as much as 3' (1m) deep. After you dig this hole, water will slowly filter through the soil and fill the well. The soil will help to filter out insect larvae and other larger contaminants. Allow this water to sit in the well until the sediments sink to the bottom. You can then collect water from the top. This water will still need to be purified. You can also use this method to gather water in dried-up but still damp riverbeds.

Although water might not be visible on the surface, ground water will often flow into a seepage well if dug in damp areas. Because of the waiting time involved, this is not a field expedient way of gathering water in a Bug Out scenario. However, it may be your only option at a time when not hydrating isn't an option.

WATER PURIFICATION METHODS

All open source water found in ponds, streams, rivers, puddles, lakes, and pools should be purified. I often hear people use the words *purify* and *filter* interchangeably, as if the words mean the same thing. These are *not* the same thing. Purification kills germs. Filtration just filters them

Seepage well in the middle of a muddy forest floor with no other water in sight



The same seepage well thirty minutes later

Katadyn Hiker Pro water filter

Creek drinking from open-source water using the LifeStraw

out of the water. Different filters have varying degrees of filtration. Most store-bought filters in the camping and hiking departments are sufficient at catching protozoan cysts and bacteria, which are the main threats in North America. Many store-bought filters, however, will not filter out viruses. Viruses are a threat in underdeveloped countries where waste management is an issue. When just filtering water, it's important to understand your threats and also your filter's limitations. If in doubt, *purify*. The Katadyn Hiker Pro pump filter is one that I use regularly on backpacking and camping trips, and it works great. I also carry a small-profile LifeStraw water filter. Oh, but I forgot—our fancy Bug Out filters are inaccessible for one of a huge variety of reasons.

Pouring water through dried grasses

Pouring water through a bandana

Filtering

Improvising a makeshift filter of this quality isn't realistic in a wilderness survival scenario. But filtering still has its place in a survivor's bag of water tricks. Sometimes the water you find will need to be filtered before you attempt to purify it. In a perfect world, you will find nice, clean, clear-flowing water. In the real world, there are rarely perfect scenarios. Water you collect from nature can be full of floating debris, mud, insects, sticks, and anything else you can imagine. It is ideal to filter this water. Your filter doesn't have to be fancy. You can use a bandana, a sock, a T-shirt, or even a mass of dried grasses. Simply pour the water through one of these items to crudely filter out large floating debris and sediment.

Boiling to Purify Water

Bringing water to a rolling boil (large bubbles that come all the way to the top of the water and break the surface) will kill all biological threats. However, boiling has some drawbacks. First, you must have a heat source—a fire or some kind of stove and fuel. Assuming you have a heat source hot enough to boil water, you then need a container that won't be destroyed by the heat (typically this means you need a metal container). It could be hard to come by either of

Carved tongs

Carved tongs placing hot rocks

Rocks boiling water in coal-burned container

these (heat source or container) in a Bug Out survival scenario you're not prepared for. To boil water, there's no alternative to a heat source, but there is an alternative if you don't have a metal container.

Using Heated Rocks to Boil Water

If you don't have a container that can be placed directly on a heat source, you can use heated rocks to bring the water to a boil. Gather small rocks (about the size of a golf ball) and place them in the coals of a fire. Obviously these stones will get extremely hot—some will even turn red—so how will you get these rocks out of the fire and into your water? Create makeshift tongs by splitting a *green* tree branch in half and then bending it in the middle.

Use the makeshift tongs to transfer the hot rocks a few at a time into a container of water. The heat of the rocks will bring the water to a boil. Once a rolling boil is achieved, all biological threats are killed. In the photos here, I have used fire to burn out a depression in a section of wood. (Coal-burned containers were commonly used by many primitive peoples; you'll learn how to make this type of container in chapter five.) After the cavity is large enough to hold water, hot rocks can be added to boil the water.

Hole lined in plastic that is protected by a folded T-shirt

Water can also be rock boiled in a hole lined with plastic or a poncho. There is a trick to this process, though. If you toss a red-hot rock into an earthen hole lined with plastic and filled with water, it will melt a hole in the plastic. The bottom of the container must be lined with a folded T-shirt or a layer of nonpoisonous veg-

SURVIVAL QUICK TIP

DRY ROCKS ONLY

One word of caution: Throw only rocks gathered from dry areas into the fire. The water inside rocks gathered from puddles, lakes, or streambeds will turn to steam when heated and cause the rock to explode. They are literally like rock grenades and can cause serious injury.

etation such as burdock, pine needles, basswood leaves, or maple leaves. This layer will protect the plastic or poncho from the hot rocks.

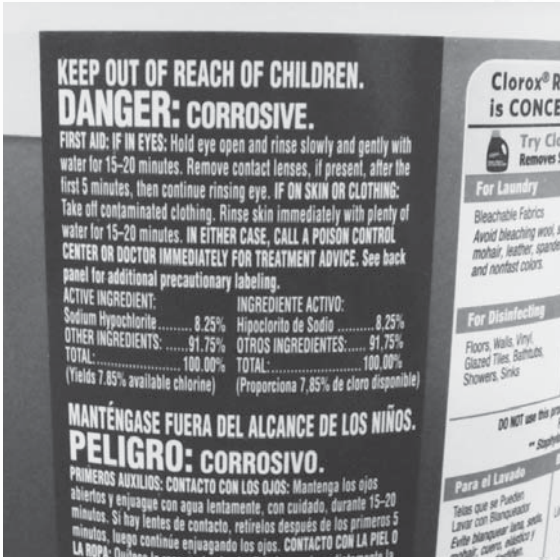
While boiling is 100 percent effective in killing biological contaminants, going to the lengths of rock boiling is really an absolute last effort and should be treated as such. It is very time-consuming, and the resulting water is often ashy unless efforts are made to rinse the rocks in between taking them from the fire and putting them into the water. I've found that quickly dipping them in a secondary container to wash off the ash works pretty well. I've also brushed them off with a tuft of pine needles. Either way, it's a lot of work for some pretty nasty water.

2 percent tincture of iodine found at any local pharmacy and in many household first-aid kits

Chemical Purification: Quick and Easy

Chemical purification is a very practical Bug Out water-treatment method. In fact, the vast majority of city water is treated chemically with chlorine. If you know the tips and tricks, you can also purify water chemically in a survival situation.

Iodine has been used as a disinfectant since the early 1900s. It is an excellent water-purification chemical. Iodine can be found in many first-aid kits, retail stores, and pharmacies. The dosage is simple: 5 drops of 2 percent iodine tincture per liter (quarter gallon) of water. After adding the iodine, wait at least thirty



8.25 percent sodium hypochlorite household bleach

minutes before drinking the water.

Even though chemicals can purify water, it's important to remember that iodine is poisonous. A few drops in water will disinfect it, but an undiluted tablespoon will harm you. Be very careful to use the minimum effective amount in your water. If possible, use a water container with units of measurement on it (liters and ounces) so you have the correct ratio of water to chemical.

Regular unscented 4-6 percent sodium hypochlorite household bleach can also be used to purify water. This can be scavenged from nearly every residential or commercial building. The Environmental Protection Agency (EPA) recommends 8 drops per gallon (2 drops per liter). Like iodine, the wait time is also thirty minutes.

At the time of this writing, most household bleach is *concentrated* with 8.25 percent sodium hypochlorite instead of the usual 6 percent. This is an important distinction. For this concentration, the dosage is 4 drops per gallon (1 per liter).

Water purification tablets can be a lifesaver in a Bug Out scenario. I would suggest that you purchase water purification tablets *this week* if you don't have some. Get the ones that come sealed in individual pouches. The ones I use are by Aquamira and can be found at my store, notifbut whensurvivalstore.com. Two to four of these tablets can be stored virtually anywhere. I keep two in my wallet. One tablet treats one liter (quarter gallon) of water. Having a couple of these tablets tucked away could be a lifesaver.

Individually packaged Aquamira tablets in wallet

SURVIVAL QUICK TIP

CLEAR AND CLEAN

Turbid (murky) water has a drastic impact on the effectiveness of chemical treatments. Your water must be clear and free of floating debris for chemical treatments to work. Filter it using one of the methods mentioned earlier in this chapter.

Grass plug with charcoal on top

Sand layer added

Hanging Tre-Filter

Worst-Case Scenario Survival Filter

In a worst-case scenario, if you have no other purification options, you can improvise a makeshift survival water filter as a last-ditch effort. This type of filter is not guaranteed to remove all waterborne threats, but it would be better than nothing at all. I call it the Tre-Filter. (*Tre* is Swedish for three.) The Tre-Filter is a three-layer improvised filter that can be constructed in a variety of ways; your creativity and available resources are the limit. The three key ingredients are:

- dried grass
- sand
- charcoal

In the sample shown in the photos, I've made a Tre-Filter using a discarded two-liter plastic soda bottle.

STEP 1: Cut off the bottom of the bottle and place a bunch of dried grasses in the bottle's neck. This wad of grasses (called the plug) prevents everything above it from falling through the mouth of the bottle. Punch a small hole in the cap so filtered water can trickle through.

STEP 2: Pile on a layer of crushed charcoal. You can get charcoal from any fire pit. After the fire has cooled, there will be small chunks of black charcoal. This is charred wood that hasn't burned to ash. (Ashes are not charcoal.) Simply crush up the charcoal using a rock. Charcoal has

excellent absorbing properties and is an important component of many modern filtering systems.

STEP 3: Above the charcoal, add a layer of sand.

STEP 4: On top of the sand, place a layer of dried grasses, which serves as a crude filter layer to remove larger floating debris. You can also use a T-shirt or bandana as this layer.

Simply pour water into the top and let it filter down through the layers and out the hole in the cap into a container. Remember, using a Tre-Filter is still risky. It's not guaranteed to remove microscopic biological threats. Use it only as a last option.

Risk Drinking Bad Water or Die of Dehydration?

I'm often asked, "If I don't have a way to purify water, should I drink questionable water?"

My answer is, "Only as a last resort." If deciding between dying of thirst and drinking questionable water, you always want to drink. It doesn't matter if you're going to die anyway. Oftentimes, waterborne illness doesn't set in until two to three days after the water is consumed. You may be to safety by then and can get medical attention or have help with keeping hydrated while experiencing uncontrollable vomiting and/or diarrhea associated with contaminated water. Do not misinterpret this advice as a recommendation to drink questionable water when you're *thirsty*. There is a vast difference between being thirsty and being on the verge of death.

Now let's talk about some other readily available water sources.

Tarp as a rain-catch canopy

Dug hole lined with a plastic garbage bag to collect rainwater

Rain-catch shelter design

Close-up of upside-down Y stake pinning plastic to the ground

Oak bark leaning against a simple tripod to help funnel water into a plastic-lined hole

WATER THAT DOESN'T NEED TO BE PURIFIED

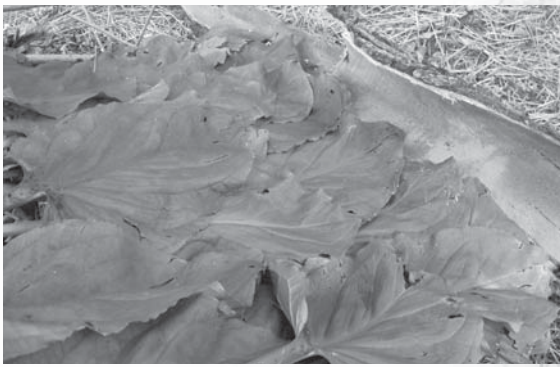
Gathering water that doesn't need to be purified is certainly preferred. It saves time, fuel, and energy. Finding fresh drinking water is certainly not a guarantee, but it sure is nice.

Keeping with the theme of energy conservation, here's a list of the most practical methods for gathering water that does not need to be purified, starting with the easiest.

Rain

Rain can be collected and consumed without treatment or purification. However, you need to collect it in your own container. As soon as rainwater comes in contact with the earth or another water source (e.g., a puddle, pond, or stream), it needs to be purified.

The most effective way to gather



A large leaf shelter canopy doubles for rain collection when "bark gutters" at the base direct run-off to a desired area

Burdock leaves used to increase surface area and direct rain into a bottle placed in a hole in the ground

SURVIVAL QUICK TIP

AMAZING BURDOCK

Burdock is an amazing wild edible plant. It is a cultivated crop in some countries and the roots are sold in many high-end organic health food stores.

rainwater is to build a rain-catch system. If possible, use a tarp, plastic sheet, garbage bag, or rain jacket to capture and funnel rainwater into one or more containers. Lining a hole in the ground or a depression is an excellent makeshift survival container and can often hold more water than smaller containers.

The canopy shelter knots discussed in chapter two are the only knots you'll need to erect any style of rain-catch canopy you can imagine. It would be ideal if your canopy shelter were also a rain-catch system. Notice in the photo how I have lined a dug-out trough with the bottom of the tarp to create a large rain-catch container. The excess overflows and drains downhill from the shelter.

You can also use natural materials from nonpoisonous trees and plants to collect rainwater. Bark is excellent for funneling and directing water toward larger collection areas. Large leaves can also be used to increase collection surface area and direct water into containers. Every square inch of surface area is important when you might need every last drop of water to stay alive.

No survival scenario is the same. The only constants that remain the same from situation to situation are the principles behind the skills that work. As long as you understand basic survival principles, you will be able to improvise a working solution. With rain collection, the survival principle you need to understand is *increased surface area.*

Snow

The old survival adage of "Don't eat

Snow kabob melting next to fire

Snow melting in sock near fire

snow!" is true. Eating snow can sap valuable energy through your digestive system. In a cold-weather environment, you need to hang on to every last calorie. If possible, melt snow before you consume it, and use only snow that is fresh and white. The chances that snow is contaminated increase the longer the snow sits on whatever surface it has landed on. In general, snow is considered clean to drink.

Four proven ways to effectively melt snow for drinking are:

METAL CONTAINER: Melting snow in a metal container over heat (fire) is the fastest way to prepare it for drinking. Many metal containers will work, including baking pans, makeshift tinfoil cups, wheel hubcaps, coffee cans, or even soda cans.

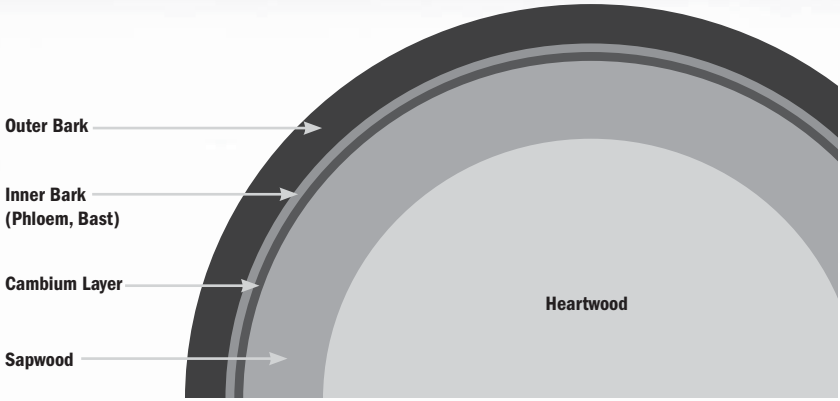
DRIP 'N SIP: Place snow in a cloth bag, bandana, or sock, and hang it next to a fire. Position a container so the melting snow drips into it. The cloth wrap also acts as a crude filter.

SNOW KABOB: Skewer a snowball onto a spiked stick positioned next to a fire. Allow the melting snow to drip into a container.

SNOW BUDDY: If no heat source is available, pack a container with snow and place it under your clothes close to your body. Your body heat will slowly melt the snow. This will also suck away your body heat and should be considered a last resort.

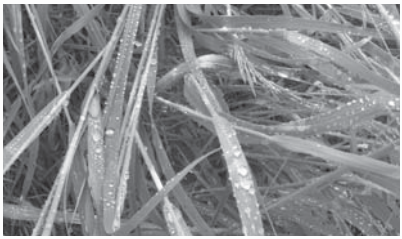
Dew

At night when temperatures drop, moisture in the air condenses and collects on exposed surfaces. This is



Tree bark layers

what we commonly refer to as dew. Dew accumulates in surprisingly large amounts each morning, even on blistering hot days. The dew that collects on grass and vegetation is considered perfectly fine to drink. The trick is gathering it. Have you ever walked through dew-soaked grass? What happens? Your shoes and pants get soaked, right? Collecting dew is surprisingly simple and incredibly effective. I've collected a gallon of dew in less than one hour with just one 22" (55cm) square bandana. Gather more by tying as many items as you can—including bandanas, T-shirts, and towels—to your lower legs. Hurry, though; dew evaporates quickly, and then you have to wait another twenty-four hours. The dew on south-facing slopes will evaporate quicker than on the north side because of the angle of



Morning dew does not need to be purified

Close-up of spile

Carved-out hole with horsetail spile

Reed grass, horsetail, and bamboo sections

Sap V-shaped wedge

SURVIVAL QUICK TIP

DON'T CHUG YOUR WATER!

Your kidneys can only process 8 fluid ounces (237ml) of water every fifteen minutes. Pace yourself when rehydrating. Keeping with this schedule ensures the most efficient use of your precious water.

the sun. Gathered dew can be wrung directly into your mouth or into a container for storage.

WATER FROM PLANTS AND TREES

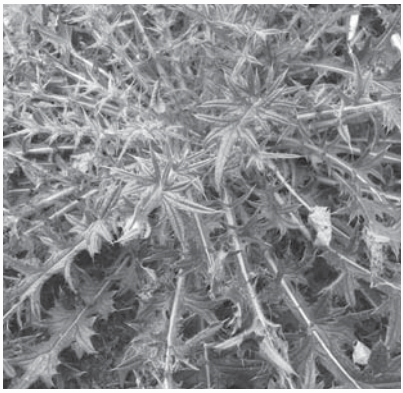
Our primitive ancestors used plants and trees as water resources for thousands of years. Here are a few ways they used them.

Tapping Trees

Maple trees have been tapped for centuries for their sap, which is boiled down to make maple syrup. It has to be boiled to remove all of the water contained in the sap. Forty gallons (150 liters) of maple sap yields only one gallon (4 liters) of maple syrup—that's how much water is in the sap! Sap from nonpoisonous trees is 100 percent drinkable and also contains sugar and nutrients from the tree. Look at it as nature's version of an energy drink. In late winter and early spring, many trees will gush sap if you cut into the sapwood layer.

A spile is the tool used to drain sap from trees during maple syrup production. It's basically a small tube that's inserted into a hole drilled about 1" (3cm) into the side of a maple tree.

Some trees, like the maple, will drain sap almost all year round; the sap just moves a lot slower in summer and fall than in late winter and early spring. In early spring



First-year bull thistle plant

(February and March), I've filled one-liter canteens with maple sap in less than thirty minutes, so this method is a good Bug Out option when you're forced to evacuate in later winter or early spring. The best trees for sap in my experience are maple, birch, and sycamore. It's not likely that you will have a spile (or a drill to make a hole) handy in a Bug Out situation. Don't let that stop you. With a little effort, you can carve a hole in a tree with a pocketknife or an improvised tool. A hollow piece of reed grass, elderberry, horsetail, or bamboo can suffice as a natural alternative to a spile.

A crude sap wedge can be made by carving a *V*-shaped notch at least a ½" (1cm) into the tree. The sap will seep to the bottom of the *V*. Placing a piece of leaf at this intersection will act as a wick, and with a little finesse, the sap will drip from the tip of the leaf into a container below. A small piece of cord leading into your water bottle can also serve as a sap wick.

Bull Thistle

Bull thistle is the American Midwest version of a cactus. It is an invasive plant that is very common in much of the country. What many people don't realize is that the bull thistle is covered with thorns to protect a very

Grape leaf

Water collected from draining a grapevine for twenty minutes

precious and valuable resource: *water*. The bull thistle holds more water than any other plant in the Midwest. Its thick, lush center stalk is full of water-packed cells. After the prickly outside skin and leaves have been carved away, you can eat the inner pulp raw or just chew the water from it. Just as apple cider is pressed from apples, thistle juice can be pressed from thistles. The water in bull thistle is completely fine to drink.

The best way to harvest the bull thistle pulp is to carve off all the leaves and spines while the plant is still standing. It's easy to work your way around the plant this way. After the plant is clear of thorns, simply whack off the stalk and slice off the bitter outer rind to access the inner pulp.

This is more of a mouth-wetting trail snack than a substantial source of water, so don't spend much time or energy on it. Imagine drinking the water from celery—that's the best way to describe thistle. Sometimes in survival, it's about the collective sum of little successes rather than a huge overall score. Tuck this one away just in case.

Many animals, such as groundhogs and rabbits, get nearly their entire water intake from the vegetation they eat. It's an important survival lesson.

SURVIVAL QUICK TIP

CREATE A BREATHER VALVE

When collecting water from vines, make a slice in the vine about 5'–6' (2m) above where you've cut it off. This helps to speed the flow of liquid. The slice acts as a breather valve, similar to one on a gas can.

Grapevines

In North America, wild grapevines are prevalent in almost every forest

SURVIVAL QUICK TIP

KNOW YOUR LOCAL SPRINGS

Know the water springs around your area and en route to your BOL for quick Bug Out fill-ups. Find out if local springs exist in your area here: http://www.findaspring.com.

Creek's local spring

URBAN WATER SOURCES

HOT WATER HEATERS: Hot water heaters are great sources of drinking water. Even after municipal water supplies stop flowing, many hot water heaters will still be full of fresh drinking water. All water heaters are designed with a drain valve at the bottom so they can be drained when they need to be replaced. Oftentimes, a flat-head screwdriver is required to twist the valve. This is yet another great reason to carry a good multitool (discussed in chapter five).

PIPES: Remember the first water rule: Water always runs downhill. Lower level and basement pipes could still have water in them. When water pressure stops, any water in a building's plumbing systems will drain to the lowest point. Find this point and you may find water.

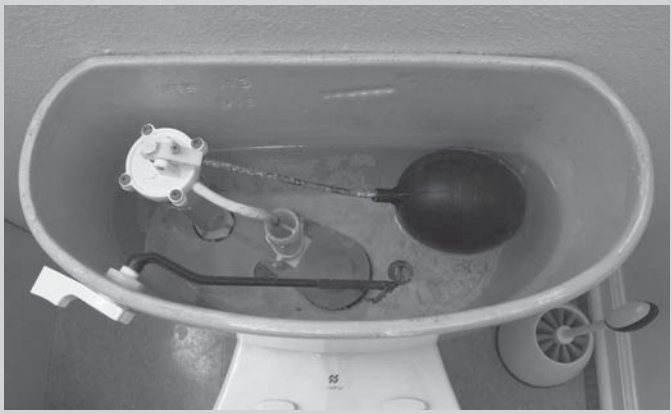
TOILETS: You can drink the water in toilets! Not in the bowl, but in the reservoir tanks. Fresh water is used to flush toilets and some toilet tanks may still be full.

OUTDOOR SPIGOTS: Many industrial buildings have exterior water spigots to use for landscaping or to power wash sidewalks and walls. These buildings will almost certainly be abandoned in a Bug Out scenario, but it doesn't mean there isn't still some pressure in the water lines. Industrial spigots aren't like residential ones. They typically require a special tool, called a silcock key, to turn the valve. I have added one to my Bug Out Bag and Bug Out Vehicle specifically for this purpose. The ones I purchased can fit four different fittings, as not all spigots are the same.

Drain valve with hand-turn knob

Drain valve on water heater (requires flat-head screwdriver)

Pipes running through floor joists in basement



Toilet tank full of fresh water

Industrial water spigot

Creek's silcock keys

area. The leaves and curly tendrils are telltale ways to identify the vine.

Grapevines are known to contain a crazy amount of fresh drinking water, especially in spring. I've harvested over a gallon (4 liters) of water from one grapevine. Cut the grapevine off near the ground and let it drain into a container. Let it sit for a while, even if there are no immediate results. Do not drink the liquid from vines if it's milky, white, stinks, or tastes bitter. Vine water should be fresh smelling and fairly clear.

GROUNDWATER

The groundwater coming from a natural spring is considered safe to drink. This is not open-source surface water that has had the opportunity to be infected with biological contaminants from things like dead animals or feces. It has been filtered by many layers of soil, sand, and rock and is being forced back to the surface through a series of underground cracks and fissures. Many pioneers sourced their drinking water from natural springs that bubbled up from the ground,

Water bubbling from surface in the middle of the woods at Willow Haven (this is good to drink)

and they almost always located their homesteads in close proximity to a natural springhead. Collecting this water at the spot where it comes out of the earth is just fine.

Similarly, water seeping and dripping from rock walls is typically considered safe to drink. Make sure the water is coming from within the rock and not flowing over it from an open source above. Just as from beneath the earth, water seeping from rock walls is being naturally filtered.

SUMMARY

There are certainly more water-gathering and purification tactics available. I have intentionally left out several of these because they are not practical considering the time constraints of a Bug Out. In fact, many of them are impractical even in perfect conditions. For example, building a solar still is mentioned in almost every survival book I've purchased. The reality of a solar still is that they take many hours to produce only a few ounces (milliliters) of water. This also requires full sun, a sheet of clear plastic, and oftentimes a big hole dug in the ground. Open-water ocean survival is about the only place I've seen solar stills produce enough water to be worth the time or effort to set one up. This chapter is about water survival skills that can actually pay off in the time frame you need them to.

When it comes to survival water, you may not have one perfect freshwater source. You might have to pull from a variety of resources to meet your daily hydration requirements. Remember, water can kill you just as fast as it can save you. Don't let extreme thirst cloud your judgment. Thirst is a sign that you are *already* dehydrated.

4 SURVIVAL FIRE

For a run-down of what you'll learn in this chapter, watch the video at:
willowhavenoutdoor.com/btpbos-chapter-4.

OUR ANCESTORS DEPENDED ON FIRE FOR SURVIVAL. They used it to cook, keep warm, and create useful tools. Thousands of years later, we are no less dependent on fire. Fire-starting skills are critical to survival. I can always tell how much experience someone has with survival skills by how they start a fire. You can't fake fire. You can hack your way through shelter and maybe even get lucky with water, but fire is what separates the men from the boys and the survivors from the, well, people who don't make it out alive.

USES FOR FIRE

You can use fire in a number of ways to meet a variety of survival needs including warmth, signaling, cooking and boiling, and making tools.

Warmth

A nice, big fire can counteract the effects of even the most severe winter weather. In cold weather, when a shelter isn't enough to keep you warm and you don't have proper bedding, you must have fire to survive.

Signaling

Signal fires are a classic survival rescue signal. What is a signal fire? It's one that puts off heavy smoke during the day and bright flames at night. I use the log cabin method to build a daytime signal fire. I'll teach you how to build a log cabin-style fire later in this chapter.

Building a fire can be one of the fastest ways to attract attention to your campsite. But not all fires have to give away your location. The Dakota fire hole, which I discuss later, is a virtually invisible fire for times when being seen might be a bad thing.

Cooking and Boiling

Boiling may be your only option for purifying water. It is 100 percent

Warming by fire

Signal fire built with green leafy boughs for lots of smoke

Roasting squirrel over an open fire

Fire-hardening a spear point

effective in killing all protozoan cysts, bacteria, and viruses. Building a fire to boil water may be your only option without a Bug Out Bag or modern camping stove.

Having the ability to just start a fire is insufficient. You must be able to *build* a fire that sustains a strong flame required to boil water. The first moments after a fire is started are critical. I've seen too many students let a fire go out because of poor preparation.

A fire may also be required to cook food, especially if wild game is sourced en route (discussed later). It is my recommendation to never eat raw insects, fish, or wild meats. They should always be cooked, and this requires fire.

Making Tools

Fire is at the center of almost every modern-day manufacturing process because it can transform and change raw materials unlike any other process. You can use fire to do amazing things. Native Americans started controlled fires in fields and then walked through the charred remains to eat the roasted grasshoppers and insects. Hot coals can be used to create coal-burned wooden containers that can be used for cooking and even boiling water (wooden containers are detailed in chapter five). Fire can burn through logs too large to move and be used to harden carved spear and arrow points. Pine sap and charcoal can be heated and mixed to create an amazing natural glue-like substance. Fire is a powerful tool and can help transform other items into tools.

FIRE COMPONENTS

Fire is unlike many other survival needs. Typically, when you need a

fire, you *need* a fire *now*. Mastering fire building *only* comes from experience. It's a survival skill you'll need to practice before you encounter a survival situation.

In addition to experience, you need two items to build a fire: fire tinder (the fuel) and ignition source (the heat). Heat + Fuel + Oxygen = Fire. This is known as the Fire Triangle. If you have nothing to burn, you can't keep a fire going. This section shows you multiple options for fuels and ignition sources so you can start a fire in almost any situation.

Fire Tinder

A tinder bundle is the very first fire-starting material you will try to ignite when building a fire. It should be the finest, driest, lightest, and most combustible gathering of materials you can get your hands on. In wet, windy, or any other not-so-perfect fire-building conditions, building a good tinder bundle will help you a lot. If you lack experience in finding, creating, or using tinder bundles, this section will help to lay the solid foundation you need.

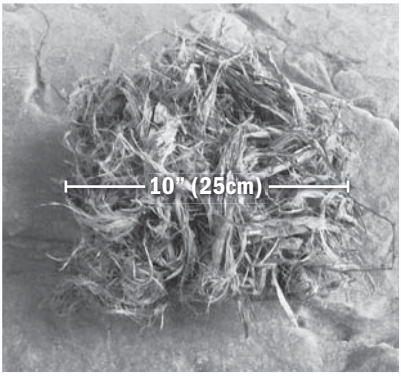
An ideal tinder bundle is:

DRY! DRY! DRY! The only exception is when your tinder is mixed with an extender or accelerant, which I'll discuss later.

FIBROUS: Thin fibers burn easily and quickly; the more hair-thin fibers, the better.

NOT TOO SMALL: Some tinder bundles can go up in smoke pretty fast. If your bundle is too small or made from tinder that burns really quickly (such as cattail down), your window of opportunity to get more-substantial kindling materials lit is very short. In a primitive survival scenario, without the aid of modern fire tools packed in a Bug Out Bag, your tinder bundle should be the size of a basketball if possible. I love *big* tinder bundles. I've seen people fail at fire in perfect conditions hundreds of times because of small tinder bundles. I've never seen someone fail because his or her tinder bundle is *too* big.

A tinder bundle has one purpose: to catch a spark or flame and burn hot enough long enough to ignite larger kindling pieces. I believe the test of a truly worthy tinder bundle is one that



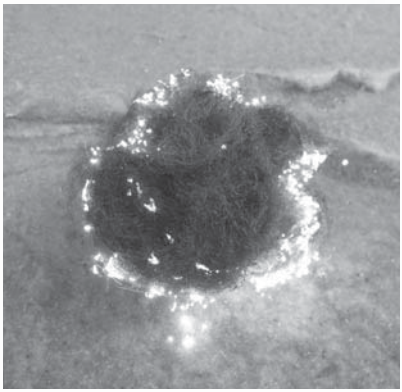
Ideal Bug Out-size tinder bundle

can catch on fire with just a spark or ember (such as from a fire by friction set, ferro rod, or flint and steel). If it requires the use of an open flame, such as a match or lighter, then it is lacking in one of the qualities above.

The most important moments of the fire-building process are the first sixty seconds of flame. Nine times out of ten, the quality and size of your tinder bundle will determine whether your fire catches and grows. Preparation is everything. How well you prepare your fire-building materials before you start the fire will determine your rate of success, plain and simple.

When it comes to tinder materials, your creativity is the limit. Tinder materials can pretty much be divided into three categories.

WetFire brand fire tinder burning in water



Steel wool smoldering from just a spark

Store-Bought Fire Tinder

There is *nothing* wrong with buying fire tinder products. There are some amazing products on the market that I highly recommend for survival kits, emergency kits, and Bug Out Bags. One product, for example, is called WetFire. This material's flammability is absolutely unreal. It will catch a spark and burn even while floating in water. I keep a few cubes of WetFire in every single survival kit I own, including my Bug Out Bag. However, WetFire has a shelf life, and when it is expired, you'll have just as much luck trying to light a rock on fire.

Other great store-bought tinders are called Tinder-Quik and Spark-Lite. These compact fire tinder tabs are treated with a chemical accelerant, and they are very effective.

If you can produce any kind of spark or ember, these store-bought tinders will pretty much guarantee you a fire. I highly suggest packing

Homemade dryer lint PET Balls

one or more in your survival and emergency kits.

The one aspect of store-bought tinders I *do not* like is that they can rob people of the knowledge required to find their own tinder if necessary. If you always depend on store-bought tinder and suddenly, in a Bug Out scenario, don't have it, then you're more than likely screwed. During a Bug Out, you may need to rely on your ability to improvise and scavenge for good tinder. This is when understanding the qualities of a good tinder bundle really comes into play.

PET Balls—Creek's Favorite Fire-Starting Aid

One of the most reliable fire tinders I've ever used is a homemade product—cotton balls or dryer lint mixed with petroleum jelly. I call them PET Balls. Cotton balls, cotton pads, and dryer lint are the perfect tinder bundle consistency because they are extremely fibrous. The cotton balls by themselves are extremely flammable, and they burn really fast when lit. The petroleum jelly acts as a *fire extender.* The jelly becomes a fuel that enables the flame to burn longer. I discuss fire extenders and accelerants later. Petroleum jelly-based products can be mixed with a huge variety of fibrous material to make it burn longer.

Natural-Found Fire Tinders

If you know where to look, Mother

SURVIVAL QUICK TIP

JEANS LINT FOR PET BALL

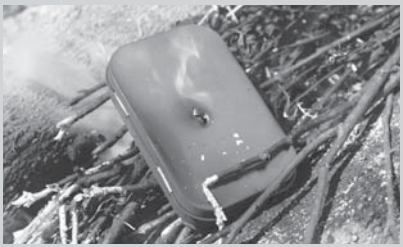
In a pinch, you can make lint by scraping a pair of denim jeans with the edge of a knife blade at a 90-degree angle. Lint will begin to accumulate, and you can collect it and use it as tinder.

Lint scraped from jeans

PLANNING FOR FUTURE FIRES

Char cloth is an excellent homemade fire tinder. Char cloth is made by charring 100 percent natural materials. This was the fire tinder of choice for mountain men in the 1800s because char cloth can light with just the tiny spark from flint and steel. Mountain men would carry a small char cloth kit with flint and steel so they would always have a way to make fire. While dried grasses and leaves can be used to make char cloth, cotton is the material of choice. And it's likely you'll be wearing something made from cotton in a Bug Out scenario. The hitch with char cloth, however, is you need fire to make it. When you make char cloth, you are thinking about future fires. In survival, you always have to think about the future, and future fire tinder is a big deal.

Step 1: 2" (5cm) squares of cotton cloth placed in a metal container with a pinhole in the lid



Step 3: Wait until smoke stops spewing from the hole (2–5 minutes)

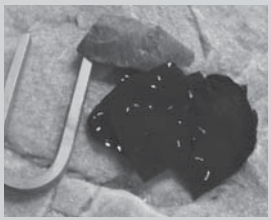
Sample mountain man fire kit

Making char cloth is very simple. I've taken photos of the process to teach you.

Char cloth will not burst into flame when hit with a spark. It will only smolder. You must place this smoldering ember into a tinder bundle and blow it into flame (discussed later in this chapter).

Step 2: Place the metal tin in a burning fire

Step 4: The char cloth is finished and ready to take a spark



Char cloth smoldering

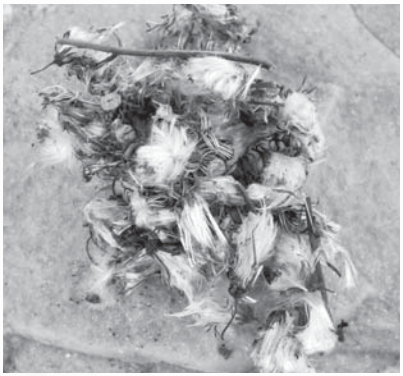
Nature can provide you with amazing fire tinders, no matter the season. The list of natural-found tinders can go on for pages. While I will give you specific natural materials that have worked for me, it's not important that you know these exactly. It's important that you understand the similar characteristics that make these items good fire tinders. No matter where you are in the world, plants and natural materials can be found and used as fire tinder. Knowing the attributes, and not necessarily the name, is what is important. With a few key exceptions, think *fluffy* and *fibrous*.

Dried seed heads from plants and trees are often perfect tinder candidates. Even in the spring and summer months, many dried seed heads can be found from the previous fall and winter.

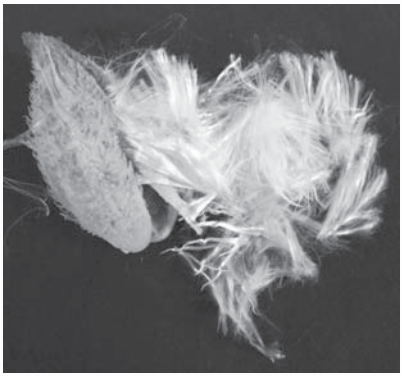
Little critters can also manufacture some excellent tinder bundles if you know where to look. You'll find that birds and other small animals are very picky about nesting materials and choose only the finest and softest twigs, fibers, and leaves. These choice items just happen to be perfect for catching a spark or ember. Often, bird nests will dry quickly because of the exposure to winds. Even when the ground is wet, I've found dry bird nests nestled in bushes and trees.

Small rodent nests also make awesome tinder bundles. These are typically hidden under logs or brush piles, or even in a small underground burrow. Even though they can take a little work to find, they are almost always dry. Rodents don't like to sleep in a wet nest, so they go out of their way to build it in a dry area. With a little effort, you can uncover a dry tinder bundle rodent nest even in a downpour of rain.

Several tree barks make excellent fire tinder as well. Birch bark is one of the best tinder materials on the planet



Dried seed head from unknown plant



Milkweed seed down

URBAN SURVIVAL: FIRE TINDERS

Once you understand the key properties of the tinder bundle, you can start to think about things in terms of whether they have potential to be good tinder materials.

PAPER: Most papers can be rubbed and twisted into a fuzzy ball of excellent tinder material. Depending on the type of paper you have, it may take a little work, but it can be done.

TAMPON: The cottony fibers of a tampon make excellent fire tinder that can be brought to flame with just a spark. Pull apart the cotton plug to expose the tiny hairlike fibers.

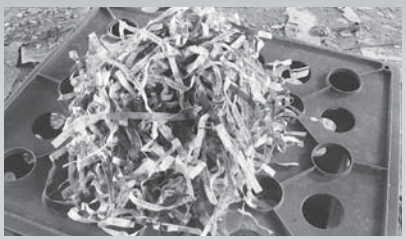
COFFEE GROUNDS: Dry coffee grounds will smolder to create an awesome ember that can be placed into a tinder bundle and blown to flame (see Smoldering Tinders later in this chapter).

STEEL WOOL: The fine steel fibers of steel wool burn like crazy when hit with a spark. Just touching the positive and negative leads of a 9-volt battery at the same time to steel wool will cause it to smolder.

OIL-BASED MARKERS: Oil-based marker ink is very flammable. Pull out the fiber reservoir and ignite it as tinder. It will burn like crazy! This will ignite with just a spark.

CRAYONS: Light the paper wrapper of a crayon and see what happens. It will burn about thirty minutes. I call these *crayndles*.

JUNK FOOD: You've been told junk food can kill you? It could actually save



Shredded newspaper tinder bundle

Tampon processed as fire tinder

Short-circuiting a 9-volt battery on steel wool, causing it to smolder

Fiber marker reservoir on fire

Crayon burning like a candle

your life. Oily potato chips and corn chips burn like nobody's business when lit on fire. They won't light with just a spark, but once you get them going, they burn strong and steady and can really help get a fire going in a pinch.

DUCT TAPE: Duct tape can not only fix about anything known to man, but it is also extremely flammable. Shred into thin strips and light on fire.

TIRE RUBBER: Inner tubes from bike tires, lawn mowers, wagons, or any other type of small pneumatic tire go up like the Fourth of July. Again, you need a flame to get them started, but once they're going, you're good as gold.

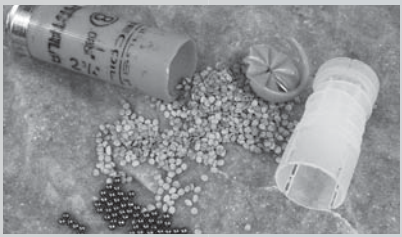
SHOTGUN SHELL: The end can easily be cut off a shotgun shell to access the incredibly flammable gunpowder inside that will ignite with just a spark.

PLASTIC SHOPPING BAGS: When lit on fire, these bags turn into dripping little lava bombs that can really help a struggling fire.

HUMAN HAIR: Whether you raid a bathroom and clean some brushes or cut your own off, human hair is highly flammable. It goes up in a flash, but it may be the kick you need to get other tinder going. It ignites with just the sparks from a ferro rod. Yes, it reeks when burning, but this is survival.

Corn chips burning

Duct tape tinder bundle going up in flame



End trimmed off shotgun shell to access gunpowder

Slivers of inner tube used to start a small fire

Human hair tinder bundle from brush

Burning plastic bag dripping fireballs

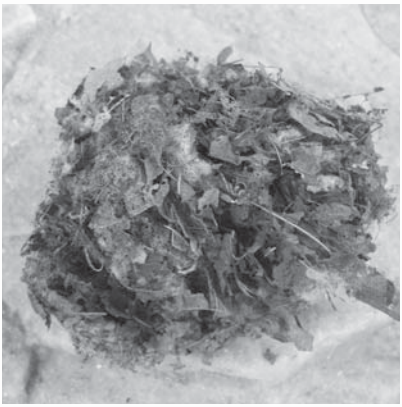
Cattail down

Bird nest fire tinder

and will light with a spark even when damp. The oil in the birch bark is extremely flammable.

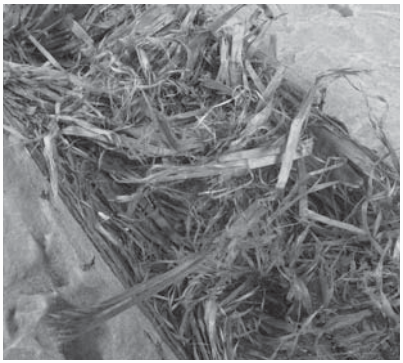
The fibers that run just beneath the exterior bark layer on many trees make excellent tinder. Tulip poplar and cottonwood are my favorites, but I've used bark fibers from almost any tree imaginable. The tree must be dead, or you'll need to look for fallen branches from which you can peel off the bark. These inner bark fibers can be "bushed up" into amazing tinder bundles that will ignite with just the sparks from a ferro rod. "Bushing" fire tinder between your palms helps to break it up and expose the small fibers that are so important.

The resinous bark of a cedar tree also makes excellent tinder. I've found the best way to collect this is to scrape the bark with your knife at a 90-degree angle. This scrapes the bark off in almost a "fuzzy" consis-



Dry rodent nest

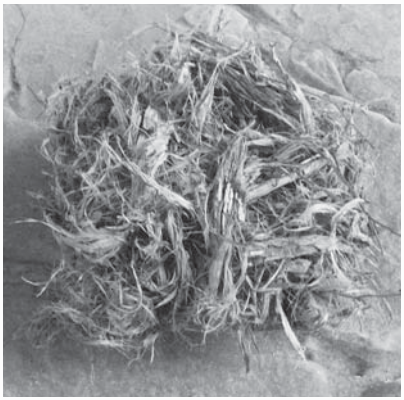
Tulip poplar bark fibers



Inner walnut bark fibers

Bushing fire tinder between hands to fluff it up

Birch bark fire tinder



Cedar bark tinder bundle

tency, which is perfect for catching a spark. A little effort goes a long way. Further, rubbing cedar scrapings between your palms helps to bring out the thin fibers.

Flame Extenders and Accelerants

Mixing fire tinder with a little bit of something flammable will drastically increase your odds of getting a flame going. There are two basic categories here: *extenders* and *accelerants*. Extenders burn slow and steady. Accelerants are more volatile and tend to burn very fast.

Some sample fire extenders are:

- Lip balm
- Petroleum jelly
- Many hair pomades
- Fat (lard, grease, or rendered animal fat)
- Wax
- Pine sap

Mixing your tinder with a fire

Dry pine sap on a pine tree

extender serves two purposes:

1. Your spark will catch faster and better.
2. Your flame will burn longer, giving you more time to catch small twigs and other kindling materials on fire.

Pine sap is one of my favorite fire extenders and can be found on the exterior of pine trees in nearly every part of the world. The sap from pine trees oozes from areas damaged by insects, woodpeckers, and broken branches. Often it will dry into crusty, amber-colored nodules. Sometimes dust and forest debris stick to the sap and make it hard to see. You might have to really look for it. These sap clusters will burn like rocket fuel and are almost impossible to put out. If you have a small fire going and need to kick it up a notch, dry pine sap clusters will certainly do the trick. Powder the dry clusters and mix into your dry tinder.

Fire accelerants, on the other hand, are much more explosive. Your spark will catch fast, and your bundle will burn fast. Accelerants can really be helpful in not-so-perfect situations, such as when it's wet and damp. Some example accelerants include:

- Gasoline
- Alcohol/hard liquor
- Perfumes
- Hair spray
- Some mouthwashes
- Many cleaning supplies
- Hand sanitizer
- Tons of other chemical products, such as paint thinners

Ignition Source

The ignition source can be a flame, a spark, a chemical reaction, a burning ember, or even intense heat hot enough to spontaneously combust flammable material or start a smoldering ember. Knowing where to find and how to use a variety of ignition devices during a Bug Out is critical. Here are some proven ignition devices:

Disposable Lighters

Disposable lighters are the fastest and easiest ignition tools for getting a fire started. Did you know you can start a fire with just the spark from a busted disposable lighter? If you process your

Busted lighter on shoulder of road

tinder properly, the tiny spark from a broken lighter found on the side of a road can get a fire going. I've filmed a short video showing you exactly how to do it using a variety of tinders. Watch it here: willowhavenoutdoor.com/start-a-fire-with-a-busted-disposable-lighter/.

Ferrocerium Rod

Ferrocerium is a man-made metal that gives off a shower of sparks when scraped with another blunt piece

Variety of ferrocerium rods

of metal, such as the back of a knife blade. It's very common in survival kits and is called a ferro rod, metal match, and "flint and steel," even though it is neither flint nor steel. Ferro rods can send off hot sparks even when soaking wet. The sparks are thousands of degrees in temperature and will quickly ignite most flammable fire tinders. The sparks in a disposable lighter come from the

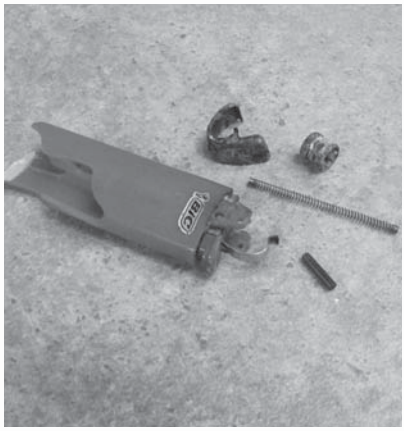
SURVIVAL QUICK TIP

WRAP YOUR LIGHTER

Wrap your lighters in duct tape. This not only helps make them more durable, but duct tape also has many uses in a survival situation.

Disposable lighters

Ferro rod spraying sparks into a tinder bundle



Disassembled disposable lighter to show the little ferro rod inside

little metal wheel scraping against a tiny ½" (1cm) ferro rod.

I carry a ferro rod in all of my survival kits and also keep one in my car and on my key ring. Figure out a way to carry a ferro rod with you at all times. It's an indispensable tool. Ferrocerium, though, cannot be found in nature and does not grow on trees. The next ignition device actually does grow on trees.

Friction Fire with Sticks

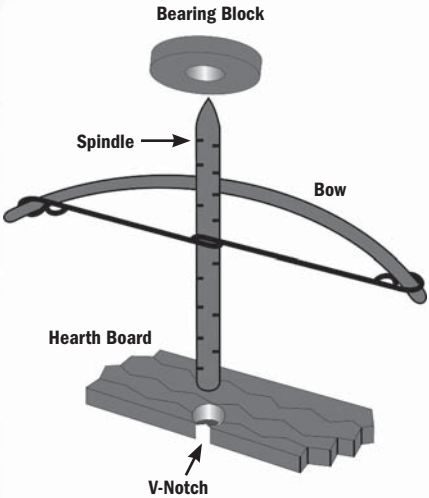
It doesn't get more primitive than rubbing two sticks together to make a fire. But making and using a bow-drill fire set is a lesson in both discipline and basic fire theory. It takes an intimate understanding of how fire works to take an ember generated from the friction of a bow drill and then blow that smoldering ember

URBAN SURVIVAL

POP CAN LANTERN

Make an urban survival lantern from a pop can! Simply make three cuts in a regular old pop can, as shown, so that two doors can be folded out. A small candle inside will light up a small room.

Pop can lantern



Bow-drill set schematic

Urban fire drill: Watch me start a fire using this urban fire drill: http://willowhavenoutdoor.com/urban-fire-drill/

into a flame. There are several pieces of natural-found equipment you need to gather, modify, and assemble:

THE SPINDLE: First, create the spindle. This is the piece that spins to create friction. It should be 8"–12" (20–30cm) long and about the diameter of your thumb. The top should be slightly pointed to reduce friction, and the bottom should be more rounded to increase friction. The spindle needs to be straight and smooth. It should also be made from a *bone-dry* section of soft wood or woody stalked plant. My favorite spindle materials are from mullein, yucca, and basswood. In the fall, the woody stalks from these plants die and dry out. I have also successfully used dried sticks from soft woods such as willow, tulip poplar, sycamore, and cottonwood trees. I have not had success with hard woods, such as oak, hickory, or cherry.

THE BOW: The bow should be made from a sturdy limb about as long as your arm. The ideal limb will have a slight curve. Many types of cordage will work for the bowstring: paracord, shoestring, hoodie drawstring, strip of leather, etc. When tying off the bowstring, leave enough slack to wrap the string around the spindle once. After the spindle is wrapped once, the bowstring should be very taut.

THE BEARING BLOCK: The bearing block is placed on top of the spindle to apply pressure on the hearth board. Carve a notch or depression that fits

Mullein plant

Yucca plant

the top of the spindle in the underside of the bearing block. In the photo, my bearing block is a chunk of walnut, but I've also used a rock, a shell, and the root of a mullein plant. You can even use a shot glass or spoon in an urban environment.

THE HEARTH BOARD: The hearth board is the base wood that the spindle spins against to ultimately create an ember. This board also needs to be bone-dry. The spindle and the hearth board should be made from the same wood or plant. The width should not be smaller than the width of the spindle and the wood needs to be about ½"–1" (1cm–3cm) thick.

You need to first carve a little starting depression in your hearth board about ¼" (6mm) from the edge.

To start the fire-by-friction pro-

Spindle wrapped in bowstring

SURVIVAL QUICK TIP

YUCCA CORDAGE

The fibrous leaves of the yucca plant make excellent natural cordage (rope or ropelike material used to lash or tie things together).

Walnut bearing block and hearth board

Carved depression

cess, use one foot to hold down the hearth board.

Place the bearing block on top of the spindle with the point resting in the notch or depression.

Put your hand firmly on top of the bearing block. Keep your hand steady by bracing your wrist and forearm firmly against your shin as shown in the photo.

Use the bow to slowly spin the spindle while applying downward pressure with the bearing block. After a few seconds, you will see smoke as the spindle grooves out a larger hole for itself.

When it starts to smoke, stop and carve a small wedge-shaped notch to the center of the newly burned depression. This notch allows the smoldering charred-friction dust to collect and form a burning ember.

Before you start spinning the spindle again, place a "catch" under

Starting position

the notch. I often use a leaf, a wood shaving, or a piece of leather as a catch. This catch allows you to safely remove the ember later and dump it into your tinder bundle.

Now, start spinning the spindle again, slow and steady at first. When it begins to smoke, gradually amp up the pressure and the speed until you're going pretty fast. The charred dust will begin to collect in the carved

Carved notch with a leaf "catch" in place

Glowing ember

Blowing ember in tinder bundle into a flame

notch. You can stop spinning when the dust starts smoking on its own. It is now a burning ember and will glow when you gently blow on it.

I've had embers burn as long as two minutes, so there's no need to rush to get the ember to your tinder. After the ember is formed and you've had a second or two to relax from spinning the spindle, gently remove your ember catch and carefully dump your ember into the middle of your tinder bundle and blow it into a flame.

Don't expect to master the art of the bow drill on the first try. Even with expert instruction, it takes trial and error to understand when and how to do certain things. But if you practice using the materials I mention here, you will be able to do it.

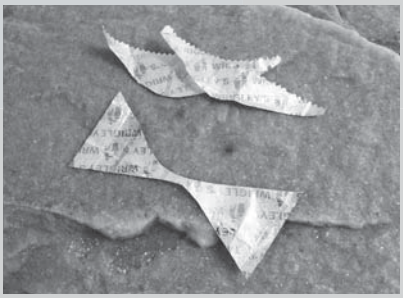
Magnifying Glass

Can a discarded glass bottle start an accidental forest fire? Yes, it can. Rays of sunlight can be focused by a glass bottle to ignite flammable tinder on the forest floor. By design, a magnifying glass can converge the sun's rays to a super-concentrated beam of light and heat that will ignite tinder. Many items, such as the bottom of a glass bottle, can do the trick. Other magnifying options include a camera lens, prescription glasses (farsighted), and a binocular lens.

URBAN SURVIVAL

FIRE FROM A GUM WRAPPER

That's right. A foil-backed paper gum wrapper can be used to short-circuit a AA battery and start a fire. Simply cut the wrapper in an hourglass shape and touch the positive and negative terminals of the battery with the foil side of the wrapper. The electrical current will converge on the thinnest part of the hourglass shape and ignite the wrapper to flame. Hurry, it only burns for a second!



Foil-backed paper wrapper cut in an hourglass shape

Foil side of a wrapper used to short-circuit a AA battery

On a bright, sunny day, hold a lens at a distance above some fire tinder in a way that focuses the rays to the smallest focal point possible. The heat will be more intense as you position the lens to make a tighter focal point of light. If you've chosen your tinder wisely, it will begin to smoke and smolder.

Magnifying glasses will rarely take tinder directly to flame. Oftentimes you have to use the lens to get a smoldering ember and then blow that into flame, just like you do with an ember created by a bow drill.

I keep a credit card-size Fresnel lens in my wallet at all times. It

Credit card-sized magnifying lens smoking a tinder bundle

doesn't matter what time of year it is or even if it's freezing cold, a magnifying glass will work as long as the sun is shining and not blocked by clouds.

MAGNIFYING GLASS SUBSTITUTES: Non-glass items can be improvised from things you can scavenge during a Bug Out to create a magnifying glass effect. Plastic bags, condoms, and even ice and clear bags of water can be shaped in such a way to magnify sun rays.

The trick to making a magnifying lens from a plastic bag or condom is to make it as circular as possible and to try to drive the sun's rays directly through the middle of the circle. Notice in the photo how I've shaped the condom into almost a perfect sphere. Even in the middle of December when the sun is at its lowest point in the sky, I can get an ember on dry rabbit poop or punky wood in less than ten seconds. It's all about the circle shape.

Condom used to converge the sun's rays onto a pile of pulverized rabbit poop

Parabolic Lens

A magnifying glass isn't the only way to start a fire using the sun. A parabolic mirror is any concave-shaped mirror that will reflect the sun's rays back to a focal point. The idea is very similar to a magnifying glass except a parabolic mirror reflects the sun's ray back toward the sun into a focal point. This intense focal point is then used to create a smoldering ember.

Many items can be improvised from scavenged trash or urban areas to create a parabolic lens capable of smoldering tinder. Among them are:

- Polished bottom of a pop can
- Shiny metal bowl
- The reflective cup behind the

SURVIVAL QUICK TIP

THE COLOR BLACK IS YOUR FRIEND

The color black *absorbs* the heat from the sun. When starting a fire using sunlight (with either a magnifying glass or a parabolic mirror), try your best to use dark-colored tinder. This tinder will absorb the heat and develop an ember much faster than light-colored tinder. This is a *huge* tip that can make a *huge* difference. Watch the video I made to show this in action: http://willowhavenoutdoor.com/black-is-your-friend/.

bulb of a flashlight

- The reflective cup behind a vehicle headlight

Remember in the beginning of the book when I talk about understanding survival principles and how creativity could be your key to staying alive in a Bug Out? Here is a classic example of how understanding the principle behind how a parabolic mirror works and a little creativity can get the job done. In the photos on page 92 I've taken an old coffee container and cut the middle out of the lid but left the rim intact.

Next, I cut a potato chip bag with the shiny Mylar on the inside (all snack bags have reflective Mylar on the inside) in a circle that's bigger than the opening of the coffee container. You could also use an emergency survival blanket.

I snapped the rim of the lid back onto the container over the top of the shiny Mylar. Lastly, I cut a small hole in the side of the coffee container and inserted a piece of hollow river cane into this hole. When I suck on the river cane, it sucks in on the Mylar packaging, making a temporary parabolic mirror. I can use this contraption to smolder an ember in less than ten seconds on a bright, sunny day. Don't believe me? Watch this video: willowhavenoutdoor.com/improvised-parabolic-mirror/.

Modern parabolic mirror fire starter (notice tinder holder)

Polished bottom of a pop can being used as a parabolic mirror

Flashlight reflector burning an ember into a piece of punky wood (the tinder is held through the hole in the bottom, and the focal point is very close to the bottom)

The inside cut out of a coffee container lid

Scrap piece of reflective Mylar

Lid snapped over Mylar piece

Hole and piece of hollow river cane

Makeshift parabolic mirror by sucking

Smoldering Tinder

Starting fires using the sun can be tricky business if you don't know what you're doing. It's important to understand what tinder can be used for smoldering. When you use a magnifying glass or parabolic mirror to start a fire, you are basically using the sun's rays to create a smoldering ember. This ember is very much like the ember generated by a bow drill or any fire-by-friction method. It's also very similar to the burning end of a cigarette. The ember must be placed into a tinder bundle and blown into flame.

Unless you know what kinds of tinder will smolder, this entire process can be very frustrating. Char cloth is a great example of a tinder that smolders. It absorbs heat very fast because it is black. You can generate an ember on char cloth in just a few seconds using a magnifying glass or parabolic mirror. Steel wool is another example of a smoldering tinder because it does not burst into flame. However, in a Bug Out, you may not have a tinder as nice as char cloth or steel wool. Below are some other awesome smoldering tinders:

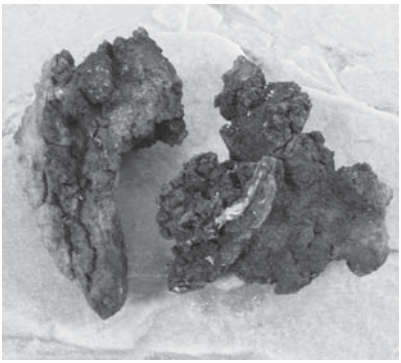
PUNKY WOOD: Dry, rotting wood. Punky wood is excellent as a standalone smoldering ember material and also for growing existing embers. Sprinkle powdered punky wood on an existing ember to make it bigger.

TINDER FUNGUS: A fungus that grows on birch trees. A piece of tinder fungus was found on Otzi the Iceman in the Austrian Alps. Otzi is Europe's oldest known natural human mummy.

MILKWEED OVUM: The paper-thin membrane to which seeds are attached inside a milkweed pod (only from dead, dry milkweed pods). This will smolder with a tiny spark from flint and steel and almost instantly with a solar tool.

MULLEIN PITH: The spongy

Punky wood



Tinder fungus (Chaga) from a birch tree

Styrofoam-esque center on the mullein plant stalk (only from dead, dry mullein plants).

RABBIT POOP / DEER POOP: When pulverized, these dry, compact pellets make excellent smoldering tinder. Rabbit and deer poop is excellent for growing existing embers. Sprinkle the dry pulverized poop on an existing ember to make it bigger.

SAGE: Dry sage leaves smolder very well (that's why many people use sage as incense in their homes).

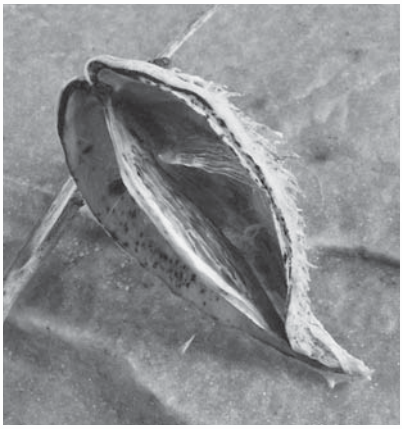
TOBACCO: Either dry tobacco leaves or scavenged tobacco from cigarette butts.

COFFEE GROUNDS: Ground coffee smolders very well.

FROM EMBER TO FLAME

Placing a smoldering ember into a tinder bundle and blowing it into flame is easier said than done. I've learned a few tricks over the years. First, like I've already mentioned, I like basketball-size tinder bundles. Bigger is always better.

It goes without saying that a tinder bundle should be gathered, processed, and shaped *before* a smoldering ember is developed. To shape the tinder bundle, imagine a really fat hot dog bun. This is the shape you're going for. Your finest, driest, and most fibrous materials should be placed right in the middle.



Milkweed ovum

Mullein pith

Pulverized deer poop

Fat hot dog bun-shaped tinder bundle

Smoldering ember placed deep into tinder bundle

Place the smoldering ember (again, bigger is better) deep into the crevice of the hot dog shape. If you have a tiny ember, take a few minutes to grow it using one of the items mentioned above. Then, contrary to common sense, fold the tinder bundle over the ember. The ember should be enveloped inside the tinder bundle, smoldering out of sight.

Tinder bundle folded to envelop ember

Finally, blow into the tinder bundle. You want to drive the heat of the ember into and throughout the fibers of the tinder bundle. The more smoke you see, the harder you can blow.

Once a tinder bundle is blown into flame, below is the method I prefer for using it to build a fire.

Blowing into flame

PRIMITIVE FIRE BUILDING

Igniting tinder is one thing, but building a fire and keeping it burning is a practiced skill in and of itself. When building a fire with limited

tools and resources, such as in a scenario where you've lost your Bug Out Bag, you must take a slightly different approach than when you might have store-bought tinder or fancy fire tools such as disposable lighters. If you've read my first book in this series, *Build the Perfect Bug Out Bag*, you'll notice the process below is a little different. It's pretty much foolproof if you've done the proper prep work. You need to have each step of this process prepared and ready *before* you light your fire tinder. Time will be working against you, and your only defense is proper preparation, especially when working with quick-burning tinder.

Step 1: Fire Platform

A good fire platform is a solid foundation for any successful fire, especially in damp, snowy, or wet environments. It will keep your dry tinder, kindling, and initial flame off the ground. Even the slightest bit of moisture can affect your fire-starting material's ability to burn. Your platform can be constructed from a variety of materials, either natural or man-made. I've used everything from flat rocks to a metal trash can lid. Three fire platform ideas are shown in the photos.

Step 2: Backer Log

When building a primitive-style fire, I always start with what I call a backer

Flat rock fire platform

Tree bark fire platform

Wood branch fire platform

Backer log with bark fire platform in front, kindling at left, and tinder bundle at right

Tinder bundle blown into flame and placed against backer log

log, a small log about 4"–6" (10cm–15cm) in diameter. This log serves multiple purposes. First, it can be a wind block if positioned correctly. Secondly, as I add tinder and kindling against the log, it creates a fire lean-to. It allows plenty of air (oxygen is critical when starting fires) to come in from both sides and underneath.

Step 3: Tinder Bundle

Whether I'm blowing a tinder bundle into flame or lighting it with a ferro rod or match, I place it right up against the backer log. The flame is protected from the wind, and the log also helps to keep the heat from dissipating quickly.

Step 4: Kindling

When building a primitive fire, I always try to start with a full bear hug-sized pile of kindling. This may seem like a lot, but I have almost a 100 percent success rate when it comes to fire starting since taking on this philosophy. Don't cheat yourself! A fire needs *fuel* to burn. Many people will feed just one or two little sticks at a time and wonder why the fire isn't taking off. Feed that hungry flame with big handfuls of kindling! Your kindling should consist of dead, dry branch tips varying in size from toothpick diameter to no larger than pencil diameter, with most of them being the toothpick to Q-tip size.

If dry, dead branch tips are not available, you will have to cut this kindling from the middle of larger branches. You can either split one branch into many lengths or you can make feather sticks. Feather sticks are branches where curls (feathers) of wood are carved from around the stick to expose the dry inner material.

Bear hug-sized armload of kindling

Squaw wood (the lower hanging branches of pine trees) is perfect for fire kindling

Once your tinder bundle has caught flame, slowly place handfuls of kindling across the flame and lean some up against the backer log. As the first few handfuls catch fire, continue to place the rest of the kindling on top. Blow into the sides of the lean-to if necessary to provide the fire with more oxygen.

At this point, your fire should be steadily burning on its own. You can continue to stack on larger limbs and branches. The key to this entire process is having all of your fire kindling collected before you ignite your fire tinder. There will be no time to run around and gather kindling while nurturing your fire to life.

FOUR FIRE LAYS FOR SURVIVAL

Just as there are different shelter styles for different environments, there are different fire styles to suit different needs. These styles are called fire lays.

SURVIVAL QUICK TIP

MAKE YOUR OWN TINDER

A small pencil sharpener carried in a survival kit can quickly turn small sticks into perfectly carved fire tinder.

Pencil sharpener shavings

One branch split into a pile of small kindling; before (left) and after (right)

Feather Stick Step 1: Pin an arm-length branch in between your chest and the ground

Feather Stick Step 2: Slowly push a knife down the stick, carving away a thin curl of material

Feather Stick Step 3: Continue carving curls around the stick

Feather Stick Step 4: Continue carving feathers up the stick

Handfuls of kindling placed on top

Blowing into the sides to provide oxygen

Four distinct fire lays to consider are the tipi, the long log, the log cabin, and the Dakota fire hole. Each lay has specific uses.

Tipi Fire Lay

The tipi fire lay is a multipurpose fire lay. I use the tipi as the starting fire for almost all of the fires I build with fancy store-bought tinders. It is a great way to get some flames going.

It is an excellent fire style for cooking small game or fish on a roasting spit. It works very well when cooking using a kettle and tripod as well. It is also a very effective warming fire in cold weather.

Long Log Fire Lay

The long log fire lay is specifically used for warmth in cold-weather environments. A long, body-length fire is an exceptional way to keep warm in cold weather, especially when you are sleeping in an open-front lean-to shelter that can help reflect the heat

Tipi fire lay

Spit-roasting a squirrel over a hot bed of coals from a log cabin fire lay

Boiling water with tripod and tipi fire lay

back down on you. This fire style also allows you to burn large logs that can be very difficult to use in other, more compact fire lays.

Log Cabin

When constructed properly, the log cabin fire lay lights and rages very quickly. After the walls are constructed, the inside is filled with flammable tinder and small pieces of kindling.

This fire lay is the one I use for building a signal fire. Pictured on page 102 are the steps to create the log cabin fire lay for that purpose.

When the dry tinder inside the cabin is ignited, it will catch the entire log cabin frame on fire very quickly. Burning green leafy branches and pine boughs puts off billows of white smoke that create an excellent rescue signal.

Dakota Fire Hole

Sometimes your survival depends on not being found. In a Bug Out situation, a fire can give away your location. If you are trying to hide, but you still need a fire, the Dakota fire hole is a great fire lay option. Not only is it nearly invisible (day and night), but it also burns efficiently and produces

Long log fire lay

Step 1: Build a log cabin-style fire platform off the ground

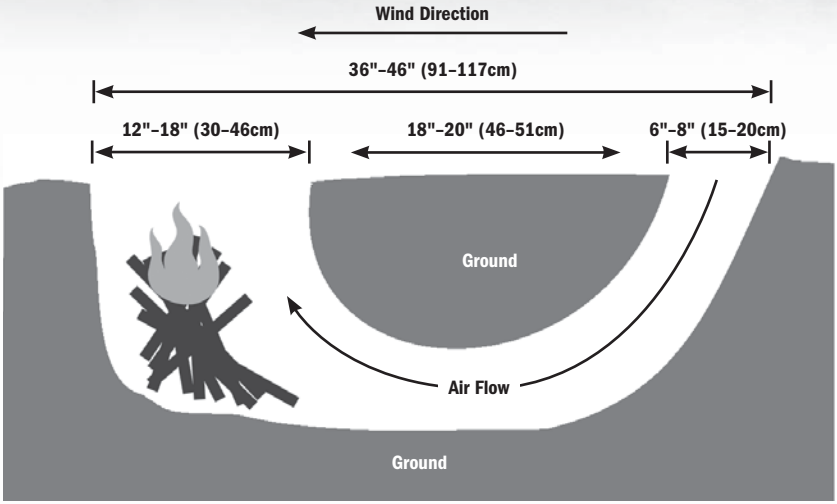
Step 2: Continue to build the walls of the log cabin up a couple feet, reducing the stick size the higher you get

Step 3: Fill the log cabin with dry tinder (dead leaves, dry grasses, dead pine needles)

Step 4: Pile several layers of kindling (sticks and twigs no larger than a pencil in diameter) on top of the dry tinder

Step 5: Cover with a large mound of green pine boughs or green leafy branches

Ignite the tinder at the base of the log cabin – burning green boughs will produce thick white smoke



Cross-cut diagram of a Dakota fire hole

very little smoke. It is easy to cover up and leaves no trace. It isn't great for warming in cold weather, but it is excellent as a cooking fire. And, because your fire is basically built in an underground pit, it also performs very well in windy conditions.

The Dakota fire hole starts with two holes 18"–20" (46cm–51cm) apart and 12" (30cm) deep, as you can see in the illustration. Dig a tunnel roughly the length of your arm to connect the two holes. If you don't have a shovel or digging trowel, a strong, sharpened stick about the length of your forearm works as an improvised digging tool. Use it to break up the dirt and then scoop the dirt out with your hands and repeat.

Build the fire in the larger hole; the smaller hole feeds the fire with air and oxygen. Ideally the holes are dug

A Dakota fire hole burning

Cooking over a Dakota fire hole

so the wind direction crosses over the smaller "feeding" hole first. This design makes for an incredibly efficient fire that will burn very hot and smoke very little.

Green sticks, a flat rock, or a grill can be placed over the larger hole as a cooking surface. Don't cover the hole completely because airflow is critical to this design.

CARRYING FIRE

As I wrap up the fire chapter, I'd like to show you a few ways to transport fire if you ever have the need. There are three ways I have used with great success.

Apache Match: 4–8 hour carry time

I've heard stories of Native Americans using this fire carry method to transport fire over the course of several days. I suspect, however, that it involved the use of several Apache Matches to get the job done. The Apache Match is a layered system that allows you to carry a smoldering ember from an existing fire to a new location. A red-hot coal is rolled into the middle of a large tinder bundle. This tinder bundle is then wrapped loosely with grasses or bark fibers. Bark can also be layered on the outside if desired. The coal will slowly smolder and continue to grow through the tinder bundle. You'll want to blow on the coal every now and then to make sure it's still smoking, but don't blow so much that the ember bursts into flame. Once at the final destination, unravel the fibers and blow the bundle into flame.

Apache Match with coal smoking and smoldering inside

Punky Wood Burrito: 2–6 hour carry time

Fill a container full of crushed, dry punky wood. Then bury a red-hot coal from the fire inside. This coal will continue to grow and smolder for many hours until the punky wood is all used up. Be sure to occasionally blow on the ember to keep it alive.

Fatwood Torch: 1–4 hour carry time

Pine resin is extremely flammable stuff. Fatwood is the term used for when the wood of a pine tree becomes saturated with resin. This happens primarily in pine stumps after the tree has been cut down, but it

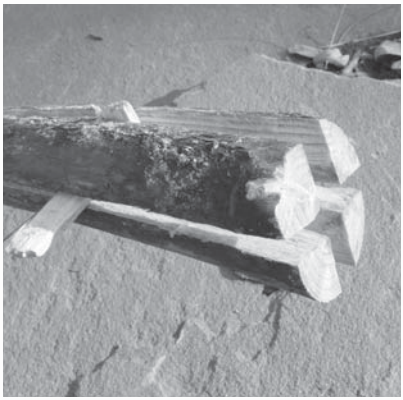
Old soda can filled with punky wood and a smoldering ember

also happens in the lower hanging branches where they connect to the pine tree. The parts of the branch closest to the tree are often rich with pine resin. Once sawed off at the joint, these "pine torches" can be lit and will burn ferociously for several hours. The torch is easier to light when the resin-rich end (the end closest to the joint) is split into quarters about 4"–6" (10cm–15cm) down. I've filmed a short video that demonstrates how well a fatwood torch burns: willow havenoutdoor.com/fatwood-pine-torch/.

SUMMARY

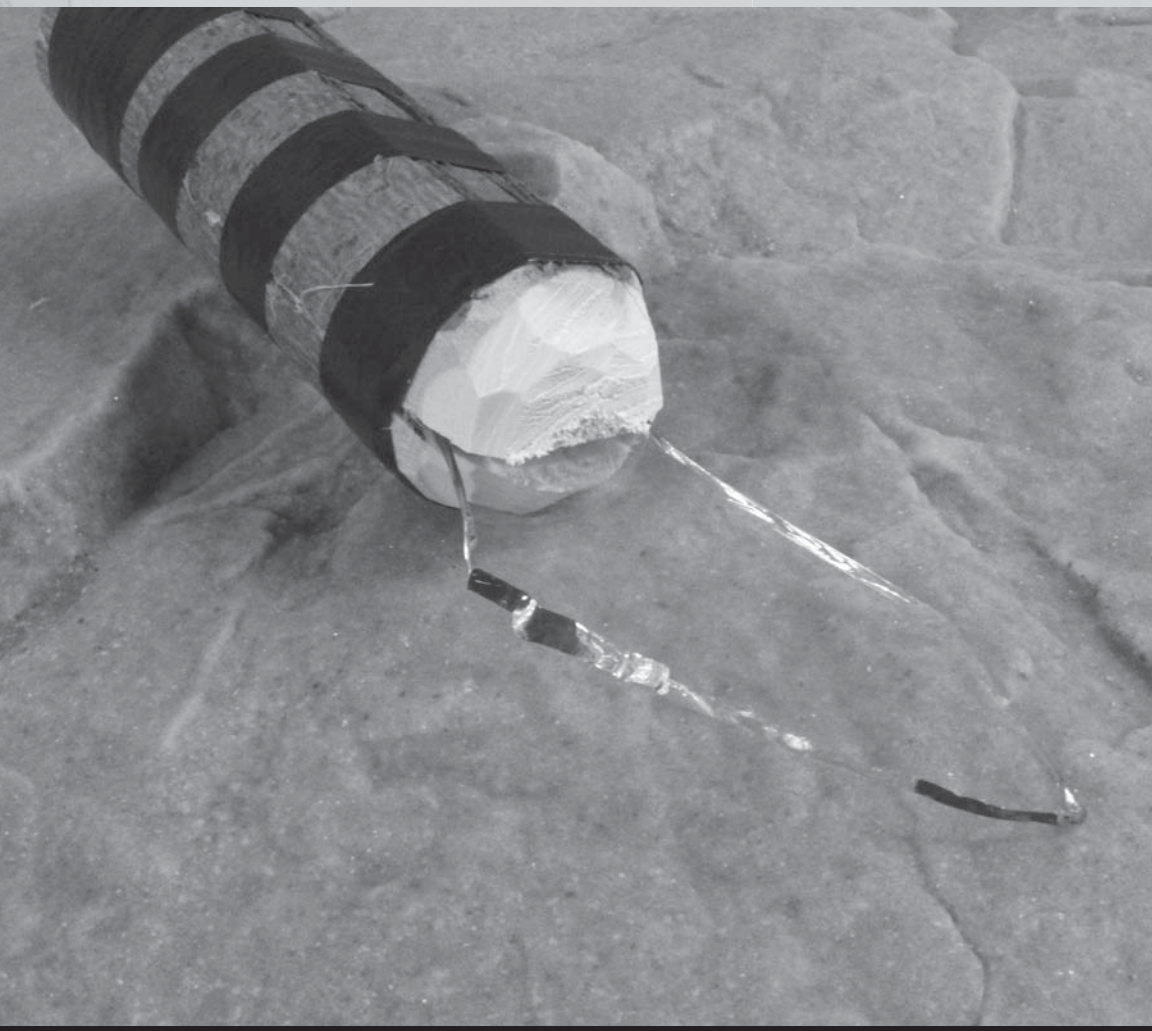
The ability to start a fire in a Bug Out survival scenario is more important than I can stress in words. Fire has a crazy number of practical uses to anyone in a survival situation. I urge you to practice the skills mentioned in this chapter in a safe and controlled environment. I still practice most of my fire skills right in my own backyard. In any survival situation, fire can be your number one survival ally.

Creek carrying a fatwood pine torch



End split into quarters with a small peg driven in to hold the splits open

5 INDISPENSABLE TOOLS OF A SURVIVOR



For a run-down of what you'll learn in this chapter, watch the video at: **willowhavenoutdoor.com/btpbos-chapter-5**.

IF YOU EVER FIND YOURSELF in a Bug Out scenario without access to your Bug Out Bag, it will help if you have a mental checklist of what tools to be on the lookout for that will make surviving the journey much easier. I call this *scavenging with a purpose*. There is a short list of tools that flat out make "surviving with less" more practical. Although many survival tools can be improvised from natural materials, it can be very difficult and time-consuming to make them. And it requires a significant amount of experience and skill to do this.

Surprisingly, the tools that should be on your survival scavenging radar are fairly common. You should be able to find most of these tools and resources with relatively little effort in most urban areas, especially with a little creativity.

Oftentimes we get caught up in brand names and fancy features when thinking about survival tools, but the reality is that the effectiveness of a tool has more to do with the skill of the user than the tool itself. I spent my childhood watching my grandfathers do amazing things around the farm with simple folding pocketknives and improvised work tools from scrap wood and metal. They didn't have the money for or access to fancy tools and often had to make their own to get the job done. Improvised Bug Out survival tools are very much the same. This chapter lists the tools that should be a top priority for you to secure as soon as possible. In addition, I offer advice about how to improvise workable substitutes when possible.

My grandpa Tucky made his farm ax from a carved handle, wire, nails, and a scrap piece of metal

SURVIVAL KNIFE

Forget everything you've ever heard about survival knives. In a Bug Out survival scenario, your survival knife is the knife you have or the knife you can make. Beggars can't be choosers. A cutting tool is one of your most important and most used pieces of a survival kit. By definition, a survival knife must be able to perform in extreme conditions. Here's a short list of tasks a knife can assist you with:

- Cutting
- Hunting
- Dressing game
- Pounding/hammering shelter anchors

- Digging
- Self-defense
- Splitting/chopping
- Making fire
- Carving
- Signal mirror (if blade is polished steel)
- Building shelter
- Food preparation

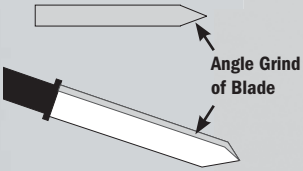
This is normally the part where I would list the perfect survival knife attributes such as full tang, size, steel choice, and blade style, but I'm going to skip all of that. The only thing that matters in a survival scenario when you don't have a knife is that you get a knife—any knife. "Knife" is actually too specific. From here out I will use "cutting tool." You just need something that cuts and gets the job done. It doesn't necessarily have to look like a knife.

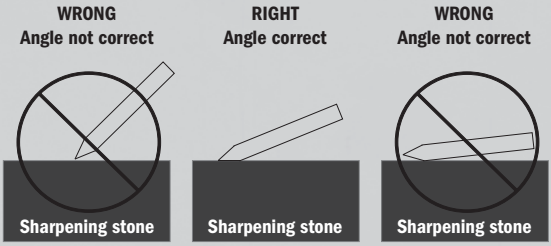
It's very important to think about why you actually need a cutting tool. It probably isn't to kill a wild boar. In fact, many of your typical survival knife functions don't require a big, strong blade. You may only need a blade for cutting a shelter tarp, gathering cordage, and carving a simple bow-drill kit. Here we are back to the concept of survival properties and principles. Rather than getting caught up searching for a specific type of

HOW TO SHARPEN A KNIFE

Here's the simple step-by-step process I use to hone my knife blade each time I come back from the woods. You will need a knife sharpening stone (available in hardware and kitchen supply stores or online).

STEP 1: Place your knife blade on the sharpening stone and make sure the angle of your knife's cutting edge is flush with the stone. Getting this angle right is very important. The angle of the cutting edge is different for every knife. As you can see by the diagram, this angle must rest flat against the stone as you sharpen. If the angle is too steep, you will dull the blade, and if it is not steep enough, the edge will not make contact with the stone.





knife, it's more important to look for something with a sharp edge that is capable of providing you with some basic survival cutting functions.

SURVIVAL MISCONCEPTION: I need a full tang carbon steel survival knife in order to make it out alive.
SURVIVAL PRINCIPLE: I need a cutting tool capable of basic survival functions.

Let's face it: Amazon.com isn't going to deliver your survival knife of choice to you in the middle of a disaster Bug Out. Your favorite sporting goods store is now a hot spot of looting and robbery, so I wouldn't recommend risking a detour in that direction either. The best first choice may be to look in places that may have some sort of cutting tool.

SCAVENGING FOR CUTTING TOOLS

Before you start trying to make a cutting tool from scavenged materials, let's think creatively about some places that may already have cutting tools that you could "borrow."

- **OUTBUILDINGS:** Outbuildings such as garden sheds and barns are perfect places to look for a cutting tool. I'd take a pair of pruning shears over

Step 1

Step 2

Step 3

After a little practice, you will be able to match this angle without thinking about it. You can buy a product called a sharpening guide to help you maintain the correct angle for your blade as you drag it across the stone.

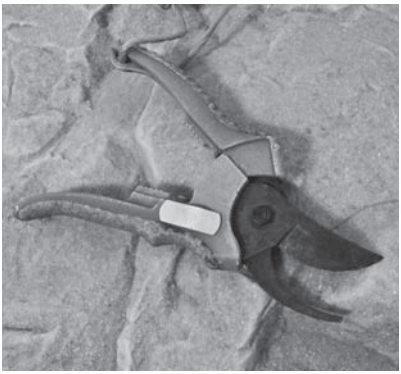
STEP 2: With slight pressure (about the same amount as if you were writing with a pencil), push the entire knife blade from point to heel across the stone (keeping the angle the same), almost as if you are carving the stone. (The point of the knife is its tip; the heel is where the blade ends against the handle.)

STEP 3: Flip the blade over and, at the same angle, pull the entire knife blade back across the stone but this time from heel to point.

STEP 4: Repeat this process eight to twelve times.

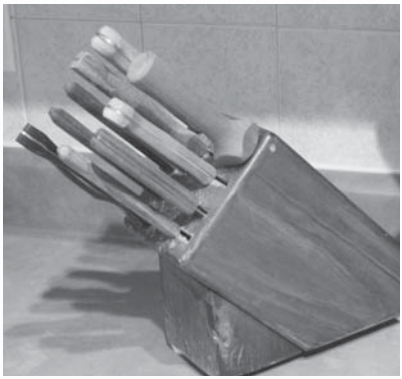
a knife any day for making a quick wigwam shelter. In fact, I made the wigwam in chapter two using a pair of handheld pruning shears. They are faster and more efficient for cutting thin saplings. One blade of a pair of hedge trimmers would make an awesome makeshift machete that could split fire kindling and clear vegetation like a beast.

- **TRACTORS/MOWERS:** Oftentimes, owners of tractors and lawn mowers will keep a knife on board in a storage compartment for a variety of uses.
- **KITCHENS/RESTAURANTS/CAFETERIAS:** I'm not suggesting you break into any of these places, but they will certainly have a variety of kitchen knives, steak knives, and cleavers. Even a

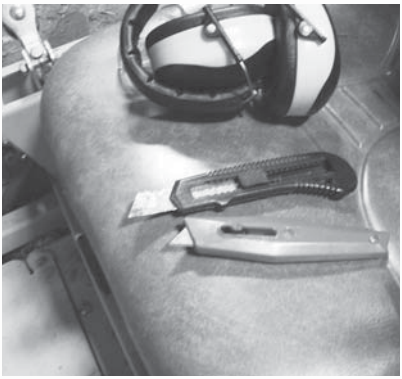


Pruning shears

A broken set of hedge trimmers makes an awesome machete



Kitchen knives would be perfect cutting tools



Razor utility knife in mower storage compartment

Butter knife filed to make a sharp cutting tool using a simple file

Scissor knife with fabric handle wrap

butter knife can be turned into an impressive cutting tool with a little filing.

- **OFFICE SUPPLY STORES/WAREHOUSES:** Office supply stores or even supply rooms in commercial buildings can have a variety of cutting tools for opening boxes and cutting cardboard. One half of a pair of scissors would make a great little survival cutting tool.
- **ABANDONED CONSTRUCTION OR UTILITY TRUCKS:** Construction trucks almost always have cutting tools inside. From razor knives and bolt cutters to saw blades and utility knives, options abound.

Though cutting tools of some sort are available almost everywhere, you still may not be able to get your hands on a modern-looking

Office paper trimmer

Machete made from an office paper trimmer blade

knife-style blade. Remember, though, improvisation is your most important survival skill. Let's discuss some ways to improvise a suitable cutting tool.

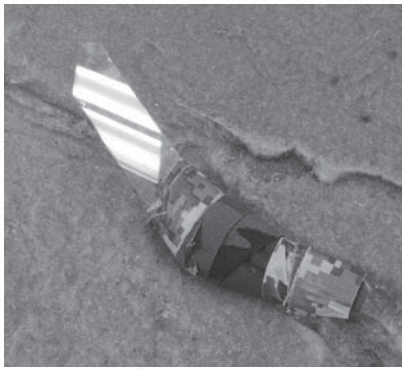
IMPROVISED CUTTING TOOLS

SURVIVAL MISCONCEPTION: My survival knife needs to look like a traditional knife.

SURVIVAL PRINCIPLE: It doesn't matter what my cutting tool looks like as long as it gets the job done.

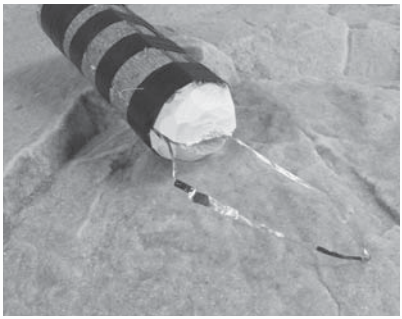
Anything sharp can probably be reworked and repurposed into a survival cutting blade sufficient enough for most cutting tasks. Access to a metal file gives you even more flexibility by allowing you to sharpen a variety of metal (or even nonmetal) objects enough for cutting. Below are some improvised knife ideas:

GLASS BLADE: Glass is probably the most readily available cutting material. Pieces can be broken from a huge variety of places, including windows and bottles. While it's not the most durable cutting blade, glass can still be used for a variety of tasks. An easy handle can be fashioned from fabric or tape. The handle shape can also be carved out of one side of a split stick, and then that stick can be lashed or taped back together around the glass for a more traditional feel.



Bandana wrapped and taped around a glass blade

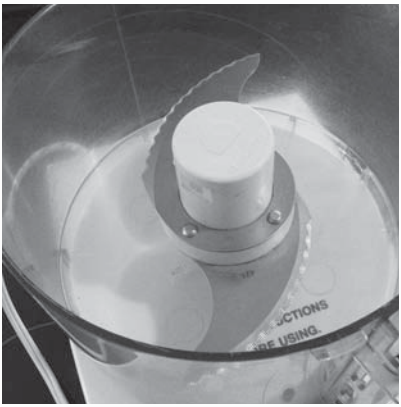
Outline traced and carved out of one side of a split stick



Glass blade placed into the carved depression and the stick taped back together with electrical tape

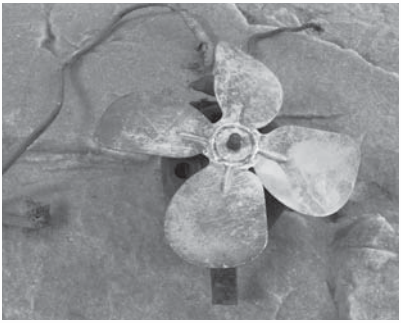
MACHINE BLADES: There are a lot of machines and appliances that contain sharp blades. From fans to food processors, you'd be surprised at the number of average household items that contain sharp metal pieces (or at least thin metal pieces that can be sharpened with little effort). Even your average paper towel dispensers have a wicked saw-like metal blade that I'd be thrilled to have in a survival scenario.

METAL BLADES: Almost any flat piece of metal can be sharpened with a file or electric grinder (although finding a grinder is unlikely during a Bug Out).



Stainless steel razor-sharp food processor blades

Jagged saw-knife in a paper towel dispenser



File this old fan blade to make a suitable cutting tool

Hoko-Style Knife

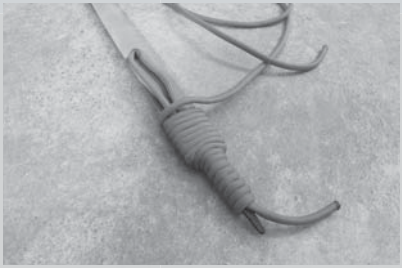
This section explains how to use modern materials in a primitive way. The term *Hoko knife* refers to a small, primitive stone-and-wood knife found at an archaeological site near the Hoko River in Washington state. They were very small flint blades, presumably used for cleaning fish caught in the river. The small stone blade was wedged into a split branch and lashed into place. I've re-created one to show you what an original Hoko knife looked like.

A razor blade or anything sharp, including stone flakes (discussed later), can be temporarily lashed or taped into a split branch or pipe. If

QUICK-AND-DIRTY CORD-WRAPPED KNIFE HANDLE

A cord-wrapped handle is one of the best ways to make an improvised handle on a makeshift survival knife. Wrapping the handle with cord can make it much more comfortable (and safe) to use. Here is a very simple and effective way to do it shown on an old file.

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



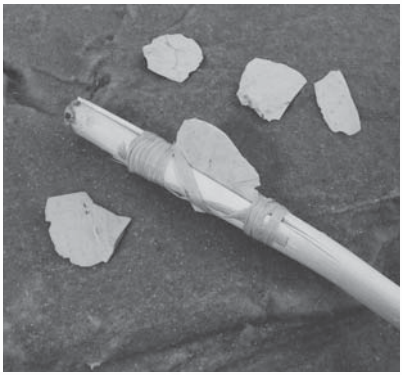
Step 2: Begin wrapping the excess cordage up toward the looped end. Be sure to leave a tag end sticking out of the bottom of the wrapping.

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

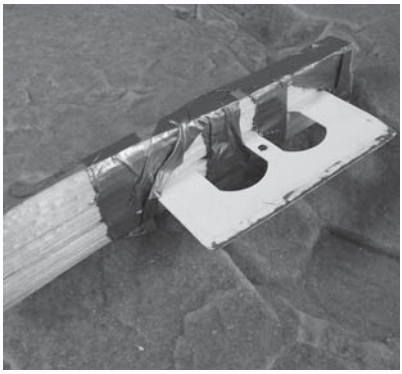
Step 4: Pull the tag end sticking out of the bottom. This will pull the loop around the tail and under the wrapping. Trim the ends.

you understand the simple survival principle behind the Hoko knife design, then the sky is the limit with what you can make. Hoko-style knives don't have to be small either. As you can see in the photo, I've sharpened the outside long edge of a metal outlet cover and duct-taped it into a split in a branch. I found everything I needed to make this knife in a construction garbage bin. I sharpened the metal outlet cover against a brick paver, and it's surprisingly sharp after about twenty minutes of abrading. A file would really do the trick.

I also created a small razor Hoko knife with some dental floss and an oak branch. I found this razor blade at the construction site also. I suspect it was discarded from a utility knife and replaced. A small knife like this would be outstanding for processing cordage, cleaning fish or small game, and slicing through shelter canopy materials.



Creek's re-created Hoko knife using a flint blade and willow branch



Outlet cover Hoko knife

Razor blade Hoko knife

Ulu-Style Knife

An ulu is a knife traditionally used by people indigenous to the arctic north. I mention this knife style because I think it's important to really think outside the box when having to source or self-manufacture cutting tools. The ulu is a great example of a cutting tool that looks nothing like what most people think of when they

Traditional arctic ulu knife

Improvised fan blade ulu knife with a split wood handle duct-taped into place

think of a survival knife. However, people in the arctic north use this knife almost exclusively for cleaning wild game, kitchen work, general-purpose cutting, and even haircuts. It can be difficult to fit a traditional knife handle to an odd-shaped cutting blade, but it may be possible with an ulu design.

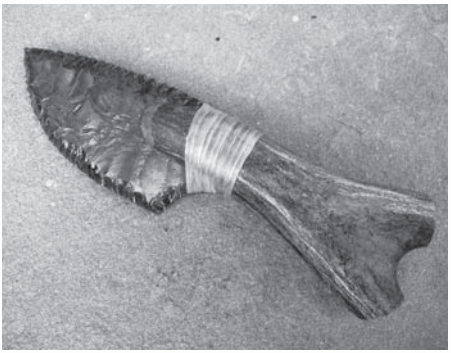
SHARP ROCKS

SURVIVAL MISCONCEPTION: My cutting tool must be metal.

SURVIVAL PRINCIPLE: It doesn't matter what my cutting tool is made from as long as it cuts.

In unexpected survival situations, you aren't guaranteed access to a knife or even metal tools and pieces. *Any* kind of cutting tool is better than *no* cutting tool at all!

Our tribal ancestors survived for thousands of years using cutting tools made from sharp rock. In fact, rocks such as flint, chert, and obsidian can be knapped, or shaped, into useful blades that have razor-sharp cutting edges capable of carving wood, cleaning wild game, and making traps. At a microscopic level, obsidian has a sharper, cleaner edge than a surgical scalpel. Native Americans were masters of knapping usable blades and



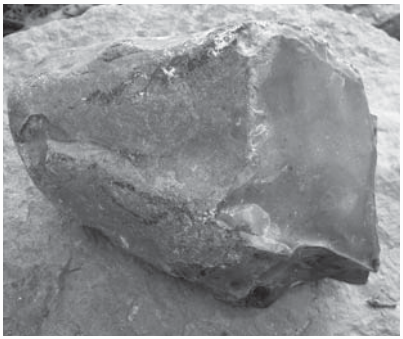
Knife made from flint rock

90-degree angle break starting point

Strike about ½" (1cm) from the edge in a downward motion

With a little luck, a flint flake will split off at your striking point

Continue this pattern until a sharp-enough flake splits off to use for your purposes



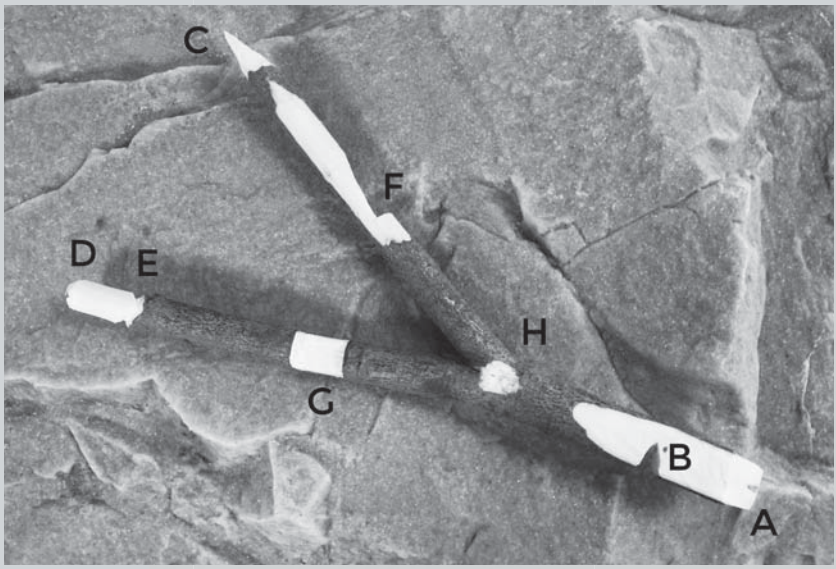
Chip mark in flint rock that reveals the smooth flint inside

spear points out of flint.

Not all rocks are the same. Ideal rocks, such as flint and obsidian, are very fine-grained and will fracture in a pattern called a conchoidal fracture, which is perfect for nice sharp edges. Knapping a cutting blade, often called a "flake," from a piece of flint rock is easy to do. You simply need a piece of

THE KNIFE STICK

I'd like to share with you a project that I typically reserve for the hands-on courses I teach at Willow Haven. I call it the Knife Stick. This is a great knife-training project. Go out and cut a nice Y stick from a soft wood such as sycamore, tulip poplar, basswood, cottonwood, or willow. Use this stick to learn the following knife cuts that can be used for a huge variety of survival tasks.



A. CHISEL TIP: Thin both sides of the stick. This cut is used in several trap designs, such as the Figure 4 Deadfall, and also when carving pot hangers for cooking.

B. V-NOTCH: This notch is great practice for carving the V-notch in a bow-drill fire set.

C. SHARP POINT: Perfect for making a spear or wooden tent stakes.

D. ROUND: Rounding the end of the stick is a great knife skill. This is also good practice for making the bottom end of a bow-drill spindle.

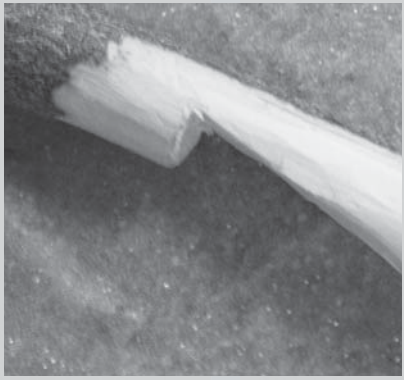
E. BOW NOTCH: Whether for a bow-drill bow or bow and arrow, this type of notch is an essential knife skill.

F. NO. 7 NOTCH: This is a very popular notch style for traps, snares, and bush-craft camp crafts.

Close-up of chisel tip (A)

Close-up of V-notch (B)

Close-up of bow notch (E)



Close-up of No. 7 notch (F)

G. ABE LINCOLN JOINT: Traditional for log cabin building, this notch also has applications when making the Roycroft pack (mentioned later) and times when lashing two sticks perpendicularly may be necessary.

H. DIVOT: The ability to make a rounded depression is important for a variety of tasks, including the bow drill and several primitive deadfalls.

Close-up of Abe Lincoln joint (G)

flint rock (or comparable stone) and another rock called a hammer stone. The hammer stone should have a solid striking end, like a hammer. I've used hammer stones of all shapes and sizes, but I have found oval-shaped rocks about the size of a softball to be ideal. Oftentimes, thick pieces of elk antlers are used as hammer stones. Before you start, you must break into the flint rock. Ideally you can create a 90-degree angle break through the rock.

It's not important that you understand how to knap museum-quality arrowheads and spear points. You don't have the time (or the need) for those in a Bug Out anyway. The simple sharp stone flakes will be most useful, and those are easy to make. These are what primitive peoples used 90 percent of the time for daily survival tasks such as preparing food, gathering edibles, cutting leather, and processing cordage. These are what were used in the Hoko knife design mentioned earlier.

The most difficult part of this process is finding the right kind of rock! I've had the best luck in rocky creek beds. Many times the flint is hidden inside the rugged exterior of a rock that's been weathered for many years. The key is looking for little chip marks that reveal the nice clean fractures that are characteristic of flint and similar rock types. I've even seen huge chunks of obsidian (volcanic glass) as ornamental rocks in urban landscaping. It's all about knowing what to look for!

Large chunk of obsidian as an urban landscape decoration

Rock blades lack the durability of metal knives but can be incredibly effective cutting tools.

LARGE-WOOD PROCESSING

Unfortunately, processing wood can be a big part of survival. Shelter and fire building will be your two most wood-intensive tasks. Fortunately, most fallen logs, limbs, and branches gathered for building large warming fires don't need to be cut down to fit in a traditional fireplace. These can just be dragged into place and fed continuously into the fire over the course of the night. Never waste the time and energy to cut down firewood unnecessarily.

Shelter building, however, is quite different. Oftentimes you need logs, limbs, and branches of a certain size and length to meet the requirements of your shelter design. Below are my thoughts about some tools and methods best used for large-wood processing.

Large, unprocessed logs being fed into a fire

Leverage

Most shelter frameworks require the use of strong, sturdy, and solid wood. Much of this kind of wood can be broken by hand between two trees growing close together. Place the piece to be broken between the trees and push. Nine times out of ten, your stick will break exactly where it's being pushed against the tree. This is a very quick and field-expedient way of breaking dead fallen limbs to meet your needs. I always try to use this method when possible.

Creek breaking long limbs between two trees

Batoning

Batoning is the word used to describe the action of pounding a cutting tool through wood. A solid stick (baton) can be used to pound the back of a knife to drive the cutting edge through fairly large limbs and small trees. This is a very effective way to cut through 1"–2" (3cm–5cm) diameter limbs using a full tang blade.

Batoning knife through a 3" (8cm) diameter sapling

Batoning certainly has its drawbacks. First, the blade must be very

solid and capable of withstanding a brutal beating. Most improvised survival blades are not up to the task. Second, batoning is really only effective for limbs up to 3" (8cm) in diameter. Beyond these limitations, you'll really need to source a tool designed specifically for processing larger pieces of wood.

Wetterlings large hunting ax

Ax

I love a good ax for splitting firewood and kindling around camp, but an ax is definitely not my first choice of large-wood processing tool if ever in a Bug Out survival scenario. I'm sure many will disagree, but I've found that using an ax for processing shelter frameworks and firewood is more labor intensive, slower, and more dangerous than other available options. Axes are also heavy and can add quite a bit of weight to a Bug Out kit.

I'll often use an ax for what I'll call "detailed large-wood processing." An ax is great at carving handles, cutting joints, chopping notches, and thinning material from hiking sticks, bows, and camp craft-type projects. All of that stuff is great when you're around camp having fun and being creative, but Bugging Out is all about getting the job done. The large-wood processing tool I prefer when I just want to get the job done fast and easy is a good quality saw.

SURVIVAL QUICK TIP

FULL TANG BLADE

The phrase *full tang* means the metal knife blade and handle are made from one solid piece of metal. The metal handle is sandwiched with knife scales to form a grip.

A comparison of a partial tang blade (left) and a full tang blade (right)

Saws

Bow Saws

When it comes to large-wood processing, I'll take a good bow saw any day of the week. It can be a little cumbersome to pack because of its awkward size, but a bow saw makes up for it in its light weight and efficiency. My 36" (91cm) Bahco weighs less than 2 pounds (1kg) and is worth every ounce. I can cut through 6"–10" (15cm–25cm) diameter logs in less than two minutes with one-tenth the effort of using an ax. I like a nice big 36" (91cm) blade because it reduces the number of strokes necessary to cut through a log or limb. I used this saw to cut the poles for the raised bed frame in chapter two, and the task was done in no time with very little effort.

BCNW leather belt designed to hold a bow saw blade

The important piece of the bow saw is the blade. A frame can be improvised in a pinch. Bushcraft Northwest (www.bushcraftnorthwest.com) has come up with a creative solution for carrying a 24" (61cm) saw blade at all times—a specially designed BCNW leather belt. I love this idea! I have a friend who stows two bow saw blades inside the aluminum tubing that makes up the frame of his external-frame Bug Out Bag. Ingenious!

The quickest way I know of to improvise a bow saw frame is with a flexible sapling about ¾" (2cm) in diameter. Cut this sapling about 6" (15cm) longer than the saw blade and make a split in each end. It can now be flexed into an arch-shaped bow saw handle. Simple round key rings can be fitted to each end of the saw blade to hold the blade into the slits cut at each end of the flexed sapling handle.

36" (91cm) Bahco bow saw

Wooden pegs can be used if no key rings are available. The flex tension from the sapling holds the saw blade nice and taut. This makes for a very field-expedient Bug Out saw.

Folding Handsaws

Folding handsaws are also amazing cutting tools and are more than sufficient for almost any shelter design. I would personally choose a folding handsaw over an ax for most survival-wood processing tasks. These can literally fit in a pocket and can buzz through 2"–3" (5cm–8cm) limbs with ease.

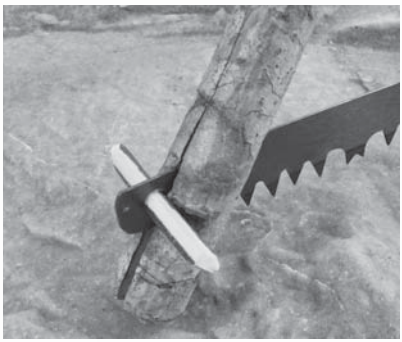
Wire-Style Saws

I've never been a fan of the survival wire saw. They're a lot of effort for little result and end up breaking half the time. However, their chain saw-bladed cousins can chew through wood

Folding hand saw buzzing through a sapling for a shelter frame

Makeshift sapling bow saw

Close-up of a key ring used to help hold blade in place



Close-up of a wooden peg used instead of a key ring

Bahco Laplander folding saw in a pocket

Wire-style saw with chain saw blade

Improvised wire saw with two pieces of twisted wire

Close-up view of the twisted wire cutting through wood

pretty fast. They're certainly not my first choice, but I'd be happy to have one if nothing else was available.

An improvised wire saw can be made by twisting two or more pieces of metal wire together. The twist ridges provide enough bite to slowly work through wood. This isn't a very efficient method of processing large wood but an idea to keep in mind nonetheless. In the photo of my improvised wire saw, I've twisted two pieces of metal snare wire together, folded that in half and twisted again. You want the twists to be tight and close together.

Fire

Using a fire to burn a log or limb to length is an option, but it's time-consuming. This was a very popular practice with primitive people who

Commando wire saw (the better of the wire saw models)

Log burned in half by fire

lived without the luxury of modern metal cutting tools. Fire was their cutting tool. This would be an absolute last option in a Bug Out.

CORDAGE

For several shelter designs, wood isn't the only building material you'll need. Oftentimes, cordage is needed to lash rafters or crossbeams for stability. Let's discuss this often overlooked and underappreciated survival resource.

Cordage is a word used for any man-made or naturally gathered rope or cord. From gathering food to setting up shelter to securing equipment, the Bug Out survival uses for cordage are endless. It will play an integral part in any survival situation. Just in case the modern cordage in your Bug Out Bag isn't available, it's very important to know how to identify and improvise naturally occurring cordage options.

Vines

Creeping vines serve very well as quickly improvised cordage. Most don't work well for detailed knot work, but they work great for projects that don't require finesse. The vine I get the most use from in the Eastern Woodlands is the grapevine. I prefer to use vines that are about pencil-size in diameter. It also helps to soak the vine overnight in a stream or pond before use. The vines become much more pliable after being soaked for a while.

For those of you who live in the southeast United States, kudzu is one of the most amazing natural cordage materials I have ever worked with. The long, flexible vines have the appearance of metal cable wire. It can

Grapevine-lashed tripod

Grapevine-lashed frame for debris hut

be coiled tightly for transport, and intricate knots can be tied with it, unlike the grapevine. It is an invasive species and can often be found growing in huge swaths. The kudzu vine can be used whole, but it splits very easily, and you can get twice or even four times the cordage from one vine by splitting it. Interestingly enough, kudzu is also a wild edible and has been used as such in Asia and Japan for centuries. The leaves look like poison ivy to the uninitiated, but it's actually a member of the pea family.

Roots

Rootlets (small roots)—especially from pine and spruce trees—can make excellent cordage. Often these roots will run just a few inches under the needle bed, and you can pull them up easily. Sometimes you can even see them from the surface of the ground. Use a stick to scrape away the ground until it hangs up on a rootlet and then slowly pull that rootlet up. Rootlets are flexible and very tough. You can use them as is, or split them into smaller strips for more detailed projects.

Inner Tree Bark

The inner bark fibers, just beneath the rough outer bark of many trees, are an excellent natural cordage option. The best time to harvest this is spring and early summer when the sap is flowing.

My favorite trees for inner bark fibers are willow, cedar, mulberry, walnut, basswood, and slippery elm. Native Americans in the Pacific Northwest used cedar bark to make fishing line hundreds of feet long for hauling in huge fish. Inner bark fibers are incredibly strong, especially when reverse wrapped (shown later in this section).

The cedar is known for fibrous bark. To access the inner bark, cut through both the outer bark and the

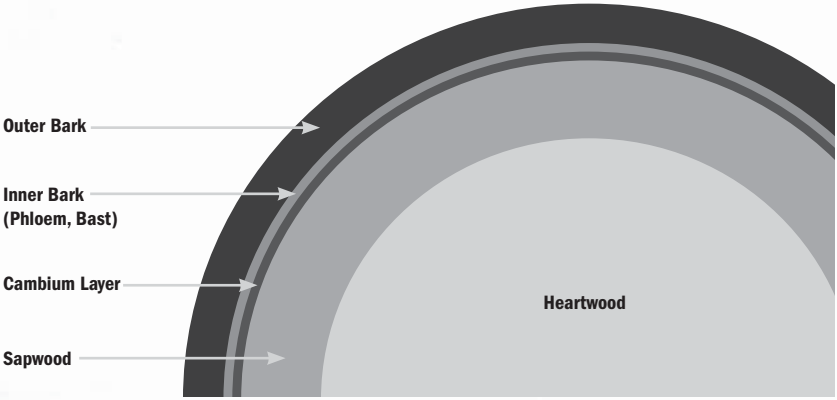
Pine roots near ground surface

Pine root tied to a hold shelter brace

white inner bark, and then peel upward. Both layers will peel up in long strips. Then, separate the inner bark fibers from the outer bark with little effort.

The inner bark doesn't easily peel away with many trees, such as walnut. I pulled the bark (outer and inner) from the walnut tree shown on page 131 after a lightning strike shredded the tree. Soaking the bark in a nearby stream for two weeks made it very easy to peel off the inner bark in long, pliable strips. Unfortunately, you won't have two weeks to wait for bark to soak in a Bug Out.

The bark from willow, mulberry, and basswood saplings is very easy to peel up in spring and summer. It becomes more difficult (if not impossible) to peel in winter months. I simply make a slice near the bottom and peel the outer and inner bark layers up as far as they will go. Then I scrub off the outer bark by sawing the strips back and forth over a rough limb.



Tree bark layers

MAKE A ROYCROFT PACK

If your Bug Out Bag is inaccessible, it's very likely you'll need some kind of pack in which to carry your newly acquired scavenged survival implements. The Roycroft pack, designed by and named after Canadian survival instructor Tom Roycroft, is the perfect solution. Here is exactly how to make one.

STEP 1: Cut three sticks about 1" (3cm) in diameter. Two should be the length of armpit to fingertip, and one should be the length of elbow to fingertip.

STEP 2: Lash these together as shown using the jam knot or square lashing (both mentioned previously). Cutting Abe Lincoln joints at the intersections makes the frame very sturdy.

STEP 3: Lay any kind of fabric over the pack. This can be a folded tarp, a jacket, a scrap piece of plastic, or in this case, a shemagh.

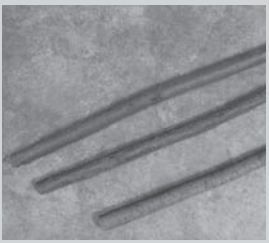
STEP 4: Place your items in the middle of the pack area. Put soft items in first as these will be the items against your back when wearing the pack.

STEP 5: Fold the fabric edges over the items and lash into place. I normally lash in the order A to B to C to D to E to F. Here I used willow bark for the lashings.

STEP 6: Tie a lark's head hitch around the top intersection as shown.

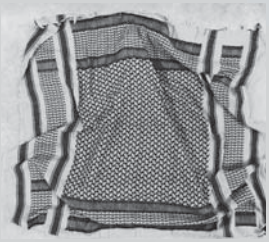
STEP 7: Loop the two ends around the bottom two intersections and tie them around your waist.

STEP 8: A finished Roycroft pack.



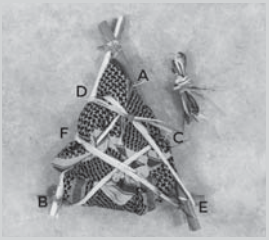
Step 1

Step 2

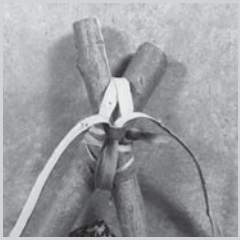


Step 3

Step 4



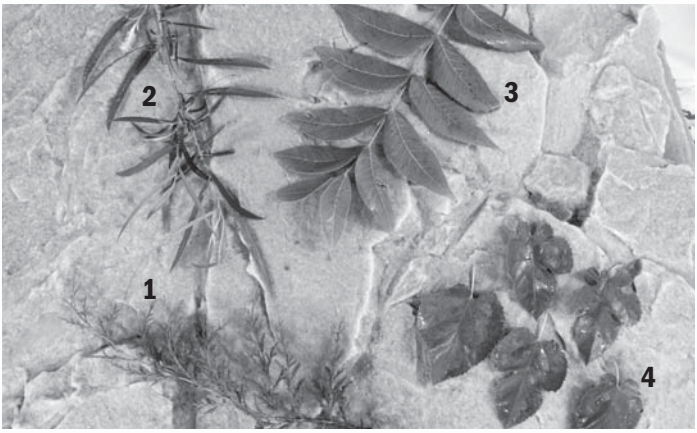
Step 5



Step 6

Step 7

Step 8



Tree Leaf Identification Diagram:
1. Cedar
2. Willow
3. Walnut
4. Mulberry

Inner bark fibers being stripped from a cedar tree

Peeling inner bark from long-soaked outer bark

Depending on the end use, it may not be necessary to remove the outer bark. You will always want to remove the outer bark when you are trying to make very fine cordage for items such as traps or fishing line. You can typically leave the bark on for less detailed chores such as shelter lashings.

At my courses, I demonstrate the strength of basswood bark by asking two full-grown men to play a game of tug-of-war using a 1" (3cm) wide section of bark. I've not seen the bark break yet. Bark is amazing stuff! I'd trust my life with a rescue line of basswood bark any day!

Plant Fibers

Plants are one of my favorite sources for natural quickie cordage. Some plants have long fibers that run along the stem. These long fibers make excellent cordage. My favorite three cordage plants are milkweed, dog-

Dry, coiled inner walnut bark

Peeling bark up from a willow sapling

Scrubbing the outer bark by sawing across a rough limb

bane, and stinging nettle. However, I've also harvested decent cordage from cattail, horseweed, burdock, and many grasses. The plant fibers of my favorite three are best harvested in the fall, after the first frost when the plant is dead and dry. At this stage, the hard, dry inner stalk can be broken and easily separated from the long fibers that run up the outside. It helps to crush the entire stalk and then work up the plant in 2" (5cm) or 3" (8cm) increments. Once separated from the outer bark, any remaining plant pieces should be removed.

SURVIVAL MISCONCEPTION: I need modern store-bought rope to lash my shelter.

SURVIVAL PRINCIPLE: I need anything flexible and fibrous that I can use as is or weave into usable cordage.

Stinging nettle gets its name because it has thousands of stinging, hair-like needles on its leaves and stalk. Because of these needles, it's best to wait until the plant dies after the first frost, or wear gloves if harvesting fibers from a live green plant. You can wipe the stinging hairs off with ease. I like to break off the plant near the base and then pull up the fibers and outer skin. The fibers can be used just like this with the outer skin still attached. I use green cordage only for

Dogbane plant

Milkweed plant

Separating a dry stalk from fibers on the milkweed plant

Processed milkweed plant fibers

temporary projects because it shrinks as it dries, and this does affect the longevity of a lashing.

Reverse Wrapping Cordage

Many natural fibers don't hold up well on their own. Twisting them together using a process called the *reverse wrap* forms a much stronger and durable piece of usable cordage. You can reverse wrap virtually anything—plastic, ribbons, and even strips of toilet paper (also known as prison rope).

Reverse wrapping is a series of well-placed twists that cause the rope to bind onto itself and hold the tight wrap. Watch a video of the process at willowhavenoutdoor.com/reverse-wrap-video. Here's a step-by-step description of how to do this.

STEP 1: Select a piece of natural

Stinging nettle plant

Pulling off skin and fibers from green stinging nettle

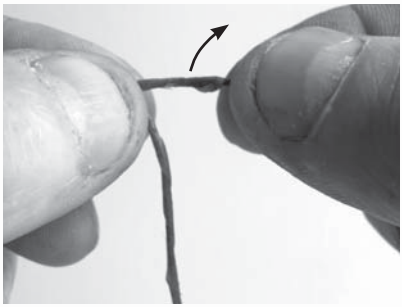
Green nettle fibers ready to use

Twisting the two ends of stinging nettle fibers to form a twisting kink in the middle

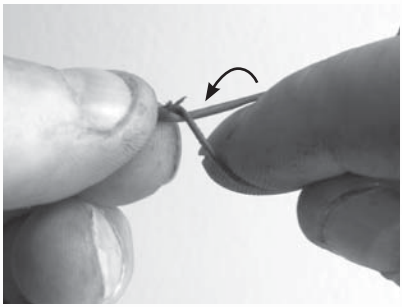
fiber. Hold one end in your left hand and the other end in your right hand.

STEP 2: With your right hand, twist the fiber away from you. At the same time, use your left hand to twist the fiber toward you. Soon a kink will form in the middle, and the fiber will begin to twist back on itself. Continue to turn your hands in opposite directions until the fiber kinks and three or so twists form in the middle. Do not form this kink in the exact middle of the fibers; try to offset it to one side so you can splice in more fibers later on to make the rope longer.

STEP 3: Now, hold the twisted kink in your left hand to keep it from unwrapping. The two loose ends will be pointing the same direction, one on top of the other. Your rope

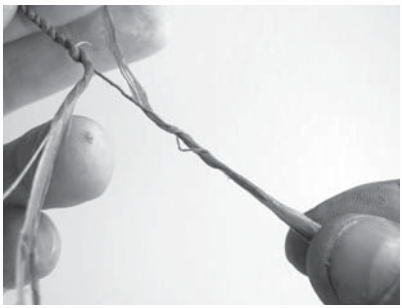


Twisting upper fork away from you



Twisting the lower and upper forks one half turn back toward you

Rope developing with steps repeated



Twisting on more fibers to a short fork

is starting to take shape. The kinked and twisted side is one end, and the two loose ends (now facing the same direction) form the other end. The loose ends fork out of the twisted end, so we will call them forks. With your right hand, twist the fibers in the top fork *away from* you one full twist.

STEP 4: Pinch both forks and rotate them one half twist back toward yourself so the bottom fork is now on top.

STEP 5: Repeat steps 3 (turning the top fork one full twist away) and 4 (rotating both ends a half twist back toward yourself) while holding the developing twisted cord in your left hand to keep it from unraveling. You will begin to notice the rope taking shape, and tension from this twisting action will hold its form.

Eventually, you will run out of fibers in either the top or bottom fork. With about 2" (5cm) of fibers left, simply twist on a new length of fibers and continue twisting. This is why you offset the initial kink—so both forks don't run out of fibers at the same time. If that happened, you would have to splice both ends in the

Cedar bark fibers reverse wrapped into a strong, usable cord

Reverse-wrapped strips of toilet paper

URBAN SURVIVAL

CORDAGE

If typical rope isn't available, there is an infinite supply of acceptable substitutes in an urban environment. Consider the following:

- Garden hoses
- Extension cords
- Strips of fabric
- Plastic bags
- Phone lines
- Duct tape
- Fire hoses
- Appliance electrical cords
- Fishing line
- Any kind of wire

Discarded fire hose

Phone lines

Extension cords

Garden hose

Variety of metal cooking containers

A great score at the roadside market

Aluminum can and glass bottle in coals

same spot, which would create a weak spot in your rope. You can trim off the spliced tails later.

CONTAINERS

From holding water to cooking food, containers play a valuable role in survival situations. A metal pot is the best survival container. Besides cooking food, a metal container allows you to boil water with very little thought or hassle. Boiling water is the only primitive water purification method that is 100 percent effective. A metal container is a luxury to a survivor and should not be taken for granted. It can be very difficult and time-consuming to improvise a suitable alternative from materials found in nature, as I will describe later.

The roadside ditch can become your new best friend when searching for improvised survival containers while on the move. It won't take long before you find some kind of container that you can use to boil water or store other survival resources. Aluminum cans and glass bottles are obvious containers for boiling water. Fill these with water and place them directly in the coals. Water will boil in just a few minutes. Aluminum cans can also be used as a container to make char cloth (as discussed in chapter four).

Alternatives to Glass and Metal

What if you can't scavenge a metal or glass container? Luckily, physics is on your side. Believe it or not, you can actually boil water in paper cups and plastic bags and bottles. Evidence suggests that primitive cultures boiled water directly over the fire in nonmetallic containers made from natural materials such as bark, animal hides, and animal stomachs. The same properties of physics apply to modern nonmetallic materials.

The temperature required to boil water is less than the temperature necessary to burn most papers and melt most plastics. The water conducts heat away from the paper or plastic and keeps it from reaching its burning/melting temperature. Here are some tips I learned in my trials:

- Any part of the cup, bag, or bottle not touching water will burn or melt. I find it best to fill up the paper cups and plastic bottles as much as possible to prevent the fire from burning the parts that aren't exposed to water.
- Don't completely seal any container. Don't put a lid on a bottle or tie a knot in a bag. The steam from the boiling water will expand the container. The last thing you need is a scalding boiling water bomb going

Water boiling in a paper cup sitting on a rock in the fire

Water boiling in a plastic bottle laying right in the fire

Plastic bottle repurposed as a waterproof fire tinder container

off at camp.

- Exposing these types of containers to heat and boiling weakens them. They are really only good for one use (two, maximum).

Scavenged modern containers are obviously the most field expedient. However, if you absolutely must have a container for boiling water and can't find, make, or repurpose one from modern materials, there are a few natural options.

Coal-Burned Containers

One of the most durable natural containers I've ever made has been a coal-burned wooden container. You can use hot coals from a fire to burn a depression into a log, stump, or large limb. It takes a little time, but this method is fairly easy, and the hot coals do all the work. It takes about an hour to coal burn a five-cup (1 liter) container from soft wood such as tulip poplar, basswood, or cottonwood. Hard woods, such as oak, hickory, and maple, can take up to three times longer.

STEP 1: Start by carving out a small depression to hold the first few coals.

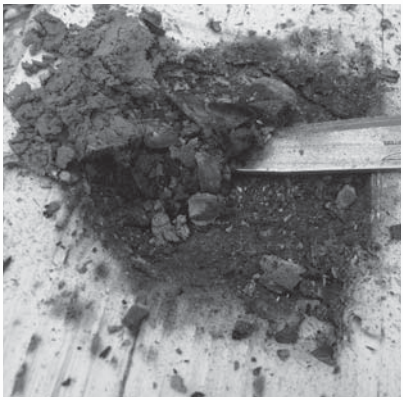
STEP 2: Then, using a set of makeshift tongs (see chapter three for how to make these), place a few red-hot coals into the depression. Blowing the coals through a piece of reed grass or bamboo intensifies the heat and helps to burn out the wood faster.

STEP 3: Replace the coals as they burn and scrape out the inside of the depression every 10 to 15 minutes or so using a knife, sharp rock, or shell. You can prevent the edges from burning by placing mud or wet sand on top.

Primitive civilizations have coal-burned entire canoes using this exact

Small depression carved in wood

Blowing coals using a reed-grass straw



Scraping out a container

Finished coal-burned container holding water

same process. A container is a very small feat in comparison. And as I explained in chapter three, a coal-burned container is perfect for using hot rocks to boil water as a labor-intensive last resort.

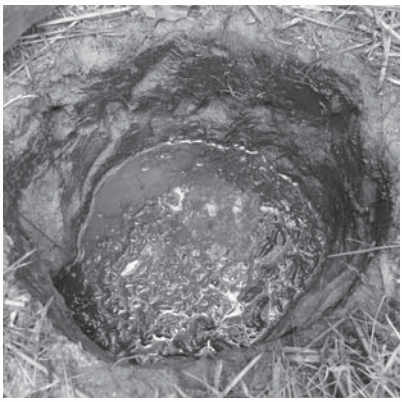
Earthen Containers

Native Americans were masters of using clay to make very impressive and durable containers. In much of the United States, clay can be found by digging a hole 2'–3' (1m) deep. The best place to find workable clay is along the edges of eroded riverbanks. As rivers erode their banks, clay becomes exposed and can be easily collected.

You don't have time to make clay pottery during a Bug Out, as it's too time intensive. You can, however, make the easiest earthen container: a simple hole in the ground that is lined with clay. Simply build a fire in the hole to fire harden the clay for use as a temporary cooking pot or rock-boiling container.

Folded Bark Containers

Primitive people used bark extensively to make watertight containers. The outer layers of bark can be worked from many different trees when the



Fire-hardened, clay-lined earthen hole vessel

Bark from a tulip poplar starting to come free

Continuing to work tulip poplar bark away from the tree

Birch bark before folding

Boat-shaped birch bark container

sap is really flowing during late winter and early spring. I've made folded watertight containers from the bark of willow, white pine, tulip poplar, basswood, and birch trees. Birch bark is by far my favorite and can even be peeled from dead, decaying trees. The high pitch content of birch bark helps preserve it long after the tree has died.

The best way to peel bark is to make a cut through the outer bark layer into the sap layer. The bark can then be slowly worked away from the tree. It's hard to do with your fingers, so I typically use a stick sharpened to a chisel shape or the blade of my ax. Once the bark starts to peel, it can be worked away by sliding your fingers

and hand underneath and gently prying upward and downward.

I've found that smooth bark trees work best. These are typically the younger trees. Make sure the area you pull bark from is free of damage, branches, and knots because these can affect the integrity of your container.

Most types of bark can be folded into a container immediately after removal from the tree. Soaking the bark makes it more pliable. I've found that simply pleating the bark on each end into a boat shape and tying it off is the easiest way to make a seam-free watertight container for boiling.

Water can be boiled by placing bark containers directly in the fire, like the plastic and paper containers mentioned earlier, or by using hot rocks. Boiling directly on the fire will destroy the bark container after several uses, but it's a lot less hassle than rock boiling.

SUMMARY

We take many of the items in a Bug Out Bag for granted in our everyday lives. In nature, many of these vital items can be extremely difficult—if not impossible—to find or make. As someone who loves the natural beauty of an untouched wilderness, I always hate finding trash in the woods while hiking, exploring, and camping. Ironically, in a survival scenario, I'll be searching for and praying to find modern trash. Those soda cans and glass bottles that I've picked up and carried out of the woods so many times could, in unfortunate circumstances, be survival gold.

6 SURVIVAL HUNTING AND GATHERING

For a run-down of what you'll learn in this chapter, watch the video at: **willowhavenoutdoor.com/btpbos-chapter-6**.

IT IS TRUE THAT HUMANS CAN SURVIVE three weeks without food. We are actually designed to go for extended periods of time without eating. Our body has natural processes to deal with these circumstances. Our ancestors ate when food was available and that certainly wasn't at 8A.M., noon, and 5P.M. daily.

But while they were accustomed to going for days, sometimes weeks, without food, we aren't. Although it is possible to survive several weeks without food, it certainly isn't comfortable. There are physical and psychological consequences when people who are used to eating three healthy meals a day suddenly don't have anything to eat. Dizziness, grumpiness, cramping, exhaustion, lethargy, and even nausea are all symptoms of hunger. Poor decisions and poor performance are inevitable.

If you're ever in a Bug Out survival situation, you'll have a huge advantage if you can forage food from nature. You need food to keep up your strength and help you survive. This chapter will teach you how to hunt and trap small animals and identify edible plants growing wild. Keep in mind, hunting and gathering skills don't come easy. Mastering these skills requires many, many hours of practice as well as trial and error.

You've lost these easy open-and-eat Bug Out meals

WILD EDIBLE PLANTS

Before I highlight several of my favorite wild edible plants, I want to be very candid with you about my opinions concerning these plants and short-term survival. I have diligently studied wild edible plants for more than sixteen years, and even before then, I regularly gathered and ate wild edible plants with my grandparents and parents. It wasn't uncommon for us to have a wild edible plant side dish at dinner at least a few times a week. Even with all of my hands-on experience and years of study, I still do not know all the wild edible plants and won't pretend to. There is so much to learn. Each plant looks different during each season. Many edible plants have poisonous look-alikes that will make you sick or kill you. Still yet, many plants have some edible parts and some poisonous parts. Some

plants even have parts that are edible at certain times of the year and poisonous at other times. Identifying, gathering, preparing, and eating wild edible plants can be risky business, even for an experienced forager.

I'm going to say something that many people in my line of work might disagree with. **Eating wild edible plants is a great hobby but should not be relied on as a survival food strategy such as during a Bug Out.**

In survival, you must always weigh risk versus reward, and it is my opinion that the risk (in both time and potential danger) of gathering wild edible plants is not worth what they give you in return. Ouch, that one's going to sting for some people.

Wild edible plants (with very few exceptions) simply don't give you what you need most in a short-term survival scenario: *calories*. Sure, you can load up on calories from vegetables, fruits, broccoli, potatoes, beans, and nuts from the grocery store, but foraging in the wild is a far cry from foraging at your local produce department. Your body burns calories for energy, and the amount of wild edible plants you'd need to eat in order to meet a basic minimum caloric intake just isn't practical during a Bug Out.

Wild edible plants are an excellent source of vitamins and minerals that are important for long-term survival, but this book isn't about long-term skills. Vitamins and minerals aren't going to mean squat in a three- to four-day Bug Out, and any time you spend hunting for, gathering, preparing, and eating wild edible plants is time that you could have been spending searching for something with real short-term survival value—meat.

With that said, I love wild edible plants, and I'll absolutely be grazing on the ones that are trailside during a Bug Out. But I won't be spending very much effort searching for them.

Creek's Four Rules of Wild Edible Plants

I live in the Eastern Woodlands of the United States, which is a broad geographic term used to describe all of the states located between the Atlantic Ocean and the Mississippi River. All of the plants that I discuss in this chapter can be found in the Eastern Woodlands, but many can also be found all over the United States and even the world. Before we get into the specifics of those edible plants, I want to issue my four rules for gathering wild edibles.

RULE 1: If in doubt, leave it out. This simply means that if you are not 100 percent certain of a plant's identity, then leave it be. The consequences

to eating the wrong wild edible can be severe and even fatal. Don't leave anything to chance. Mother Nature can be very tricky. In many instances, there are poisonous look-alikes to edible plants.

RULE 2: Focus on the 20 percent of plants that you see 80 percent of the time. There are hundreds of wild edible plants out there. I don't even come close to knowing them all. When it comes to wild edible plants, I keep it pretty simple. I focus on the ones that are readily available—the ones I see all the time—not the ones that require significant effort to locate or that have poisonous look-alikes.

I also focus on the plants that have significant food value and that are fairly easy to prepare. For example, there are many plants that are edible, but they are so small they'll do little to fill you up or provide you with energy, and so they have no significant food value. I skip these plants. I also skip plants that are difficult to harvest or prepare. If a plant requires three or four changes of boiling water to prepare, I don't waste my time. This rule alone will help keep you focused when searching for and harvesting wild edibles. Your efforts are best spent on certain plants. Just because it's edible doesn't mean it's worth your effort.

RULE 3: Get a good field guide. Even with years of experience in gathering and eating wild edibles, I almost always reference one or two field guides when foraging. The one I use most often is *A Field Guide to Edible Wild Plants: Eastern and Central North America* by Lee Allen Peterson. For further study of the plants mentioned in this chapter, as well as many others, I suggest picking up a copy of that field guide.

RULE 4: If you've never eaten it before, you shouldn't eat it during a Bug Out. Many may wonder why I issue this warning. I believe that if you haven't eaten it before, then it is very likely you aren't familiar enough with the plant to positively identify and consume it. This rule is especially applicable during a Bug Out scenario. There is no time for mistakes. There is no time for an unexpected reaction to a plant. If you haven't eaten it before, you don't know how your body may react. I've met people who are allergic to cattail and found that out only when they ate it. An allergic reaction is the last thing you need during a Bug Out.

Wild Edible Plants of The Eastern Woodlands

Go to www.livingreadyonline.com/wild-edible-plants-guide/ to download a free, full-color guide to the wild edible plants mentioned in this chapter.

Dandelion

Boiled dandelion root with a little butter

Dandelion

Although most people view dandelions as annoying weeds, they actually are a valuable, life-giving source of food. The dandelion is an amazing wild edible. It is easy to identify and, to my knowledge, has no poisonous look-alikes. I've never met a person who can't identify it. I regularly eat every part of the dandelion. It is tasty and very easy to prepare. It also grows almost everywhere. The entire plant is edible from bloom to root—minus the fluffy seedpods when the blooms mature. The seedpods might be edible as well, but I've never tried (or wanted) to eat them.

The green dandelion leaves grow in a basal rosette very close to the ground. The leaves are deeply toothed and are lance-shaped. Dandelions are easiest to identify by their bright yellow sunburst flower that appears in early spring. When I was a boy, I always associated this yellow flower with a lion's mane to remember the name dandelion. Dandelions also have a white milky sap if you break the leaves or flower stalk. This sap is the source of the sometimes bitter flavor dandelions have.

Dandelion roots can be cooked like root vegetables (carrots or potatoes, for example), and the leaves can be cooked like spinach as a potherb or added raw to salads. Cooking the leaves removes the slightly bitter flavor. The young tender leaves are best for salads. In fact, an expensive organic market near my home sells dandelion leaves for an outrageous price. I always laugh at that. I've also eaten the blooms raw. They are better when batter-fried in a wash of egg, milk, cornmeal, salt, and pepper. My mom prepared this dish all the time as I was growing up in southern Indiana. This is still one of my favorite foods.

Wild onion bulbs

Wild onion tops (chives)

You can eat the dandelions growing in your own yard (or any other yard), as long as the yard hasn't been treated with chemical fertilizers, pesticides, or herbicides.

Visit willowhavenoutdoor.com/dandelion to view detailed color photos of dandelions.

Wild Onion

I've always considered wild onion an ingredient rather than a stand-alone food. I'll often add a bit of wild onion to a salad or on a fire-roasted rabbit to enhance the flavor. The green tops can be used just as you would chives, and the underground bulbs make perfect additions to stews or can be chopped up and cooked with other root vegetables.

The green, spiky wild onion tops look exactly like chives that you would see in the supermarket. They are typically about the size of pick-up sticks and grow in very noticeable bunches. You will know these by their very oniony smell once you break open the green leaves. Wild onions grow best in wide-open sunny spaces and show up in very early spring. They thrive along tree lines and fencerows and do very well in wasteland-type environments.

Visit willowhavenoutdoor.com/wild-onion to view detailed color photos of wild onion.

Pokeweed

Pokeweed is another plant I grew up with, gathering it with my mom. I was eating poke long before I knew that most people didn't eat it. Pokeweed is a little tricky. It's fairly easy to identify, and only the young shoots 12" (30cm) or less should be harvested. The mature leaves, stalks, and berries (purple when mature) are all poisonous. The root is also poisonous. Trust

Pokeweed

Pokeweed berries (poisonous)

me, don't eat the root. I ate it by mistake once, and if I had been in a survival scenario, I may not have made it. I vomited violently for more than eighteen hours straight. The stalk begins to turn a purplish shade with age. Ignore anything with any shade of purple. Other than that, poke is an excellent potherb, and I especially like it mixed with scrambled eggs. It can also be added to soups and stews.

Poke has large oval-shaped leaves that are a vibrant green. I can spot poke amid other vegetation from many feet away because of its uniquely colored leaf. It stands out in a crowd. Poke thrives in semi-shaded areas along forest edges. It pops up in early spring and then matures into large purple stalked plants that I've seen grow as tall as 8' (2m). Often, there will be small poke plants growing around larger mature plants.

Visit willowhavenoutdoor.com/pokeweed to view detailed color photos of pokeweed.

SURVIVAL QUICK TIP

SCURVY

Scurvy is a disease that occurs when you don't get enough vitamin C. In winter survival scenarios where fresh fruits, greens, and vegetables are scarce, you'll find enough vitamin C in pine needles and rose to prevent the onset of scurvy. Symptoms of scurvy include swollen gums, skin lesions, depression, fever, and loss of teeth. Without treatment (adding vitamin C to the diet), scurvy is fatal.

Pine Tree

I make pine needle tea every chance I get. Simply boil a handful of pine needles in a mug of water to make a very nutritious tea packed with vitamin C. I've heard that one cup of pine needle tea can contain as much as five times your daily requirements of vitamin C, making it a super survival beverage. If you are boiling water for purification, you might as well toss in some pine needles while you are at it.

I've eaten inner pine bark before but can't imagine eating much of it. To me, it tasted like cardboard that had been marinated in Pine-Sol cleaning solution. It just wasn't my thing. But in truly desperate food situations, it will fill you up and keep you going. It's definitely a famine food. The inner pine bark isn't difficult to access. Simply scrape or peel off the rough, gray outer bark, and you'll find the edible inner bark layer just beneath. If you are lucky, you can peel the inner bark off in strips, or you can just scrape off handfuls of the stuff. I've had it raw, and I've also had it sun-dried, like a pine chip of sorts. I preferred the dried chips.

I love pine nuts. Let me rephrase that. I love pine nuts when I can buy them in a big package at the store. Harvesting pine nuts from pinecones is a very tedious task. It's best done by placing the mature but unopened

Pine tree

Pine needle tea

Inner pine bark

SURVIVAL QUICK TIP

BULL THISTLE

I mentioned this plant in chapter three as a water-rich plant. First-year bull thistles (those without the center stalk) have a taproot that can be cooked like a potato, though it's not as tasty. The leaf ribs are also edible, like mini celery stalks, if you want to take the time to shave off the spines and fuzz (not worth it).

Second-year bull thistle

pinecone near a fire. The heat from the fire causes the pinecone to open up, and then the nuts can be picked out. It takes a lot of pine nuts to make any kind of difference to an aching belly, but they are a nice addition to a fresh salad or roasted trout.

Visit willowhavenoutdoor.com/pine to view detailed color photos of pine trees.

Arrowhead Plant

Arrowhead is an aquatic plant that grows in marshy areas or at the edges of water. It has an edible tuber that is best harvested in the fall and is prepared exactly like you would a potato. It was a staple wild edible food in the diet of Native Americans.

The arrowhead plant is easily identified by its arrowhead-shaped leaves, which can grow quite large.

Arrowhead plant

Arrowhead plant tubers

Veins on the back side of an arrowhead leaf

An identifying indicator of the arrowhead plant is the veins along the back side of the leaf. Notice how they look like a spider—branching out like spider legs from a central point.

Visit willowhavenoutdoor.com/arrowhead to view detailed color photos of the arrowhead plant.

Arrowhead tubers will float when they are dislodged from the mucky mud in which they grow. Many Native Americans harvested the tubers by stomping through the water where the arrowhead plants grew. This stomping would work the tubers loose from the mud. Once loose, the buoyant tubers could be easily gathered as they floated to the top of the water.

Cattail

Speaking of aquatic plants, the cattail is probably my favorite wild edible plant. It has edible parts all year long. In the spring, while the seed head is still green, it can be boiled and eaten just like a mini corn on the cob. Don't expect a corn flavor, though; it's 100 percent cattail. When the seed head starts to turn brown, it's no longer good to eat.

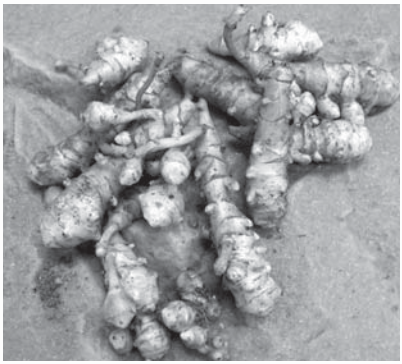
Green (edible) cattail seed head (pollen-forming section on top)

The yellow pollen that forms on the top section of the seed head is also edible, but in a short-term survival situation, it isn't worth your effort unless you wanted to add some to a stew or soup as a thickener. To collect the pollen, tie off the arm and head holes on a T-shirt and shake the pollen into the shirt. Otherwise, it is very difficult to collect and blows away quickly in even the slightest breeze.

Heart of cattail

Asparagus-like cattail rhizome

Jerusalem artichoke plant



Jerusalem artichoke tubers

I also enjoy the inner stalk of new cattail shoots that are less than 24" (61cm) tall. The stalks can be eaten raw, but when I eat them uncooked, they make my throat feel a little scratchy, so I prefer to cook them like a stir-fry vegetable or as an addition to stew. Just peel away the outer leaf layers to reveal the white inner core that is edible. You can pull these stalks right out of the plant in the ground. Grab the innermost section of the plant around 6"–8" (15cm–20cm) from the bottom and firmly pull up. The center stalk will pull right out. Then peel away the outer sheath of leaves to reveal the edible nonfibrous middle portion.

My favorite edible part of the cattail is the new rhizomes, or underground shoots. In the spring, cattail plants send out horizontal rhizomes that eventually turn upward and become new cattail plants. If you catch them at the right time, you can snap off the creamy white pointed rhizome shoot. They are delicious when prepared like asparagus.

WILDERNESS TEAS

Making a cup of bush tea is an excellent way to get some extra vitamins and minerals while enjoying a hot drink. Whenever I purify water in the wild by boiling, I make a tea while I'm at it. Below are my favorite six wild bush teas.

PINE NEEDLE TEA: Simmer a handful of green pine needles in boiling water for a couple minutes. Strain out the needles and enjoy.

STINGING NETTLE TEA: Simmer a handful of stinging nettle leaves in boiling water for a couple minutes. Strain out the leaves.

ROSE HIP TEA: Crush a palm full of rose hips and wrap in a piece of fabric. Simmer this like a tea bag in hot water for a few minutes. Rose hips have itchy fibers inside, which is why the fabric tea bag is necessary. Novelty itching powder is actually made from the fibers inside rose hips. Rose hips can be found all winter long on wild roses.

WILD MINT TEA: Simmer a handful of mint leaves in hot water for several minutes. Strain out the leaves.

STAGHORN SUMAC TEA: This is actually a cold tea. Each fall a tart, dusty film coats the red fuzzy berry clusters of the staghorn sumac. Soak a couple of these fuzzy red clusters in cold water for about 30 minutes for an excellent tart lemonade-flavored drink.

YELLOW WOOD SORREL TEA: Yellow wood sorrel looks like a little clover except with heart-shaped shamrock-type leaves. It's very distinct. It also produces little yellow flowers that have five petals. Steep a handful of leaves, stems, and flowers in hot water for a few minutes for a very lemony flavored drink. I prefer it chilled. Note: I also love to stuff fish with lemony wood sorrel when baking it in a fire.

Rose hips on bush

Yellow wood sorrel

Staghorn sumac

Stinging nettle plant

Tiny stinging hairs along stem

Cooking stinging nettle greens in a small cook-pot

Visit willowhavenoutdoor.com/cattail to view detailed color photos of cattail plants.

Jerusalem Artichoke

This plant is not an artichoke, and I don't think it comes from Jerusalem either. The name is actually very odd considering this plant belongs to the sunflower family and has a small sunflower bloom in late summer. The edible part is the starchy tuber, which should be gathered in the winter after the first frost. You can cook these exactly like potatoes. These plants spread like crazy and come up year after year. They need lots of sun and are most often found in wasteland-type environments and fields. I plant them along the forest edge at Willow Haven and consider them a backup survival garden. The tubers will keep all winter in the ground, and you can dig them up as needed. I've seen Jerusalem artichoke tubers for sale in high-end organic food stores under the name sunchoke. If you want your own crop, buy some tubers at the store and plant them just like you would plant potatoes. Or you can just find some in the wild.

Jerusalem artichoke plants grow very tall. They have a coarse, hairy stalk and pointed, lance-shaped leaves that alternate in position up the stalk. These features, combined

SURVIVAL QUICK TIP

STUNG BY THE STINGING NETTLE?

No worries—Mother Nature provides a remedy typically within a stone's throw. Rub on the juice from the stems of jewelweed, and it will instantly relieve the stinging itch from the stinging nettle. See detailed photos of jewelweed at willowhavenoutdoor.com/jewelweed.

Jewelweed, a stinging nettle remedy

with the yellow flower bloom in late summer, make this plant fairly easy to identify.

Visit willowhavenoutdoor.com/jerusalemartichoke to view detailed color photos of this plant.

Stinging Nettle

This is an amazing wild edible from a very unlikely candidate. Stinging nettle greens are one of my favorite wild edible dishes. You can cook the young plants and new leaves at the top of the older plants like you would spinach. As they grow older, just pinch off the top 2"–3" (5cm–8cm) because the rest of the plant becomes quite bitter and fibrous. Be careful as you harvest this plant. The tiny hairs along the stem pack quite the itchy punch if you brush them with your skin. Cooking the plant neutralizes this toxin, so don't worry about getting an itchy tongue. And yes, this is the same stinging nettle that we discussed in the cordage section of chapter five.

The leaves of stinging nettles are very toothed, like a saw. They grow opposite each other along the stalk. Nettles very much resemble wild mint (mentioned later), except without the minty flavor. When I'm in the mood for stinging nettle soup, I look for these plants in moist, wooded areas down by a creek or in a shady area. Many times, though, stinging nettle will find you before you find it. It just takes one sweep across the arm to know you are standing in a patch of stinging nettle plants.

Visit willowhavenoutdoor.com/stinging-nettle to view detailed color photos of this plant.

SURVIVAL QUICK TIP

PUFFBALL MUSHROOM

The giant puffball is almost impossible to misidentify. If you see a huge, solid white orb in the woods about the size of a volleyball, then it's a giant puffball mushroom. Unlike many mushrooms, you'll find this one late in the fall. I've found them through September here in the Midwest. Peel off the white rind and this freak of nature can be steamed, fried, boiled in soups, roasted, or baked. One puffball is quite a meal and very easy to find.

Giant puffballs growing in the woods

Lamb's Quarter

I make a mean lamb's quarter soup with cattail pollen, milk, wild onions, salt, and pepper. Lamb's quarter can be added to soups and stews and can also be cooked alone as a potherb like spinach. It is an excellent wild green and is best gathered when the plant is young. Lamb's quarter has a very pleasant, mild flavor, and the young tender leaves make excellent additions to fresh salads. I eat the leaves from this plant from early spring until late fall.

Lamb's quarter

Lamb's quarter is very easy to identify with its leaves having a white powdery underbelly. A slang name for this plant is goosefoot because the diamond-shaped, softly toothed leaf slightly resembles a goose's foot. It grows very tall in maturity (up to 6' [2m]) and branches out like crazy.

You can find it almost anywhere. It loves wasteland environments, like old construction sites, barren roadsides, and field edges. It is almost al-

Wild mint

Wild mint tea

ways one of the first plants to pop up in disturbed soil. You probably have lamb's quarter growing in your backyard and don't even know it. Once you learn how to identify it, you'll see it all over the place. This wild green is at the top of my favorites list.

Visit willowhavenoutdoor.com/lambs-quarter to view detailed color photos of this plant.

Mint

Wild mint has two distinct identifying features: a strong minty smell produced when the leaves and stem are crushed and its square stem. I rarely find wild mint, but when I do, there is a lot of it in one spot. Mint can add flavor to your food, and chewing the leaves will ease hunger pangs.

Mint isn't really a stand-alone food but is best added to other dishes; it is especially good with meats, such as rabbit and quail. Mint also makes an excellent tea, as mentioned earlier.

Wild mint likes moist areas; I've only found it along rivers and streams. The jagged toothed leaves grow opposite each other along the square, hollow stem. Always identify

URBAN SURVIVAL

FORAGING TIP

Locate an urban harvest near you! Fallingfruit.org is an interactive map of wild edibles found in and around cities all over the world. I found an entire grove of pawpaw trees just two miles (three kilometers) from my house that I never knew existed. You may be able to map free wild edibles along your Bug Out route using this resource.

Curly dock

Handful of mature dock seeds

mint by crushing the leaves to reveal its distinctive minty aroma.

Visit willowhavenoutdoor.com/wild-mint to view detailed color photos of this plant.

Curly Dock

Young dock leaves have a sour, tangy flavor that I actually like. The leaves can be eaten raw when they are young but are best boiled in one change of water after they mature. It makes an excellent spinach-like dish.

Curly dock leaves have curly and wrinkled edges—hence the name. The lance-shaped leaves grow quite long; I've seen leaves 18" (46cm) long. They are very easy to spot among the other grasses and weeds in early spring. They grow primarily in very sunny, open areas. As the plant matures, it produces a center flower stalk that is topped with hundreds of seeds.

The seeds are also edible and can be ground into flour or boiled in water and eaten as gruel, similar to oatmeal or grits. If you boil the seeds, add some berries or honey, if you have them, to make the dish far more enjoyable to eat.

Visit willowhavenoutdoor.com/curly-dock to view detailed color photos of this plant.

SURVIVAL QUICK TIP

USES FOR A SHARPENED STICK

A sharpened digging stick that is 2"–3" (5–8cm) in diameter and approximately 24" (61cm) long is perfect for digging up wild roots. It can also function as an impromptu throwing weapon if you jump some wild game.

Wild Edible Plants Summary

Entire books have been written on identifying wild edible plants. As I mentioned in my four rules of wild edibles, I highly recommend you get a good, comprehensive wild edibles field guide, such as *A Field Guide to Edible Wild Plants: Eastern and Central North America*. The wild edibles I've listed in this chapter are some of my favorites. All of them fit my wild edible plant criteria of being easy to find, easy to identify, and easy to prepare. None of them will disappoint.

Download a free quicksheet reference guide that includes fast facts and color photos of all the wild edible plants discussed in this chapter at www.livingreadyonline.com/wild-edible-plants-guide/.

HUNTING, TRAPPING, BIRDING, AND FISHING

You already know how I feel about wild edible plants during a short-term Bug Out. You can spend years studying wild edible plants and still second-guess yourself. Let me ask you a question. Try to name a poisonous look-alike to a rabbit. Can't think of one? OK, then name a wild animal, fish, or bird that is poisonous to eat. I'm sure there are some exotic frogs in the Amazon jungle and maybe even a few critters in the ocean, but in general, it's very difficult to think of anything furred, feathered, scaled, or finned that isn't edible. Even rattlesnakes and scorpions are delicious.

I don't like killing animals, never have and never will. Heck, I don't even like to kill insects (which are also edible and discussed later). However, eating meat is just a part of survival. There were no vegetarian primitive cultures. Modern developments in farming, transportation, and commerce allow us the luxury to load up on a huge variety of plants and vegetables nearly all year. The wilderness, especially during certain seasons, just isn't as bountiful as your local produce department.

It doesn't take long to learn how to make and set a variety of survival

SURVIVAL QUICK TIP

THINK SMALL

It's all about the smalls—the little critters like fish, frogs, snakes, crayfish, crabs, rabbits, lizards, squirrels, mice, rats, rodents, bats, birds, turtles, possum, and raccoons. It's easy to get caught up in the idea of a big-game hunt with some fancy fashioned hunting set, but at the end of the day, it just isn't practical. Your survival will depend on your ability to hunt, kill, and eat the smalls.

Arm covered in nice, sticky mud

Camouflaged hand with mud and forest debris

traps and snares. This is a wise investment of your limited time. If you set a trap or snare and catch something furred, scaled, feathered, or finned, you don't even have to know the name of what you caught—*it's edible*. You don't have to wonder if it's poisonous during that time of year or if it's a poisonous look-alike of something edible. You don't have to conduct an edibility test or stress over whether you might have an allergic reaction or whether it's going to give you uncontrollable diarrhea or keep you up all night vomiting. All you have to do is field dress it, cook it thoroughly, and eat it. And it will give you exactly what you need in a short-term survival scenario—*calories*.

This section details some hunting, trapping, and fishing strategies that you can use to put meat on the table—even during a Bug Out with limited time and resources.

When it comes to hunting and trapping, it's important not to rush into anything. You must take some important steps to help ensure a successful hunt. Two of these steps include *camouflage* and *tracking*.

Camouflage

Forest animals are acutely aware of their surroundings. They live by survival instinct. There is no better camouflage in a forest environment than real forest debris. Even the most expensive camouflage hunting

WHEN NATURE CALLS

Not only will Mother Nature not give you a break in a Bug Out scenario, neither will your bowels and bladder! When your nicely packaged roll of toilet paper isn't available, I'd like to suggest a couple field-tested best practices. Keep in mind that our not-so-distant ancestors used corncobs and the Sears catalog to wipe their hinter parts. One of the best natural toilet paper substitutes I've used is moss. Moss is typically thick, soft, and moist with some added texture. In fact, it's like TP and a wet wipe combined. I've had excellent success with a variety of mosses.

Thick moss growing on the north side of a tree

Another excellent natural wipe is the leaf of a mullein plant. Mullein is also referred to as lamb's ear because it's soft and fuzzy. It also has the durability of a thick paper towel. It's covered with soft little hairs that act similar to a sponge. Pouring water over the leaf can create an instant wet wipe for better results. Mullein leaves are often soaked with dew (pre-moistened) early in the mornings if you're on a morning schedule.

A twisted wad of dried grasses and even a handful of snow will also work to wipe in a pinch if you're not able to locate moss or mullein.

First-year mullein rosette

Second-year mullein plant

It's always recommended to use the bathroom (both 1 and 2) at least 50 yards (45m) from any water source where you or others may potentially gather water. You should also dig a hole at least 1' (30cm) deep and bury human waste and wipes after you're done. This helps to prevent the spread of potentially harmful bacteria or disease through contact with animals or other humans passing through the area.

Creek (naked except for boxer briefs) covered in sticky mud

Creek camouflaged with mud and forest debris hiding in a hollow tree

clothing and gear cannot perfectly mimic actual sticks, leaves, mud, and weeds. Here are the steps I take when I use natural camouflage:

STEP 1: Get dirty! A base layer of mud is critical in natural camouflage. First, it provides a muted earth-tone background color. Second, it provides a sticky surface that will keep forest debris on your skin.

STEP 2: Decorate! While the mud is still moist, stick on as much forest debris as you can. This includes dead leaves, green leaves, bark pieces, and whatever else is naturally around your chosen hiding spot. If you are camouflaging your entire body, it might be easier to roll around on the forest floor after you have a good base layer of mud. When the mud dries, it will glue the leaves and forest debris in place.

You can also touch up areas with

Creek leaning up against tree

cooled charcoal from a fire. Charcoal also works great as camo face paint!

Tracking

You are an opportunistic omnivore during a Bug Out. Besides navigating toward your destination, you should also always be on the lookout for signs of animal activity. Whether searching for water or for an ideal spot to set a snare, use animal clues to guide your steps. You can even choose a campsite because of its proximity to a variety of animal signs and, therefore, fertile hunting grounds.

Obviously, being able to track animals in the forest can be an advantage when hunting them. There are several telltale signs of animal activity. These include scat (droppings), tracks, rubs, scratches, signs of feeding, shelter or burrow entrances, food and water sources, and well-traveled game trails.

These game trails, called *runs*, typically lead from the nest, shelter, or den to water and food sources. Animals are the ultimate survivors and live by the survival code of energy conservation. Consequently, several animals may travel the same trail or path on a regular basis. Animals travel the path of least resistance, and hunting or trapping along these regularly traveled runs will increase your chances of success.

Animal burrow

Animal game trail in snow

Rabbit droppings

HUNTING AND TRAPPING TOOLS

Here are a few field-expedient and effective ways to get small game.

Twitch-Up Snare

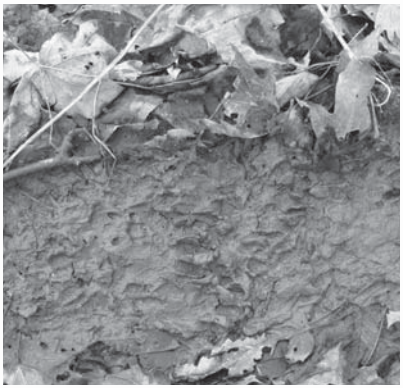
Twitch-up snares are a great way to catch small game, like rabbits, without expending a lot of time and energy. Time and energy conservation are both very important factors to consider in any survival situation. This is precisely why snares are such important survival tools. Many animals are most active at dusk and dawn, and setting a snare or two before making camp for the night is a great strategy. They will work for you all night and into the next morning until you head back out.

Setting snares is a numbers game. The more snares you set, the greater your odds of success. With ten snares, you can hunt in ten different locations at the same time while expending *zero* energy. You become a one-man hunting party. Snares are a survivor's secret weapon. Not only are snares incredibly reliable and effective, they also require very few resources (materials, energy, and time) to build.

Before you spend time and energy on building and setting a snare, you must first determine which animal you want to target with your snare. For survival purposes, small game represents your best chance of success. While the twitch-up snare can be scaled up to catch animals as large as deer, it is more practical to target small-game animals, such as rabbit, squirrel, and ground-dwelling fowl, such as quail or grouse. This snare can also be modified to fish for you as well. Not only are smaller game animals easier to catch and field dress, but you can set numerous small-game snares using the same amount of time and materials it would cost you to set one larger snare.

The twitch-up snare can be effective in virtually any climate and any environment on any continent. It can be deployed any time of the year and is equally effective day and night. From desert to rain forest, I can't think of a place where you can't use some version of this snare to catch small game. With that said, placing random snares throughout the woods is foolish and a waste of time and energy. Though they can be baited to draw in animals, snares are most effective when strategically placed in-line with existing small-game trails like we discussed earlier.

The snare's trigger consists of two parts: the *hook* and the *base*. As you can see in the diagram, the *leader line* is tied to the top of the hook, and the *noose* is tied to the bottom of the hook. The *engine* (typically a



Several small game tracks along trail

Game trail along stream edge

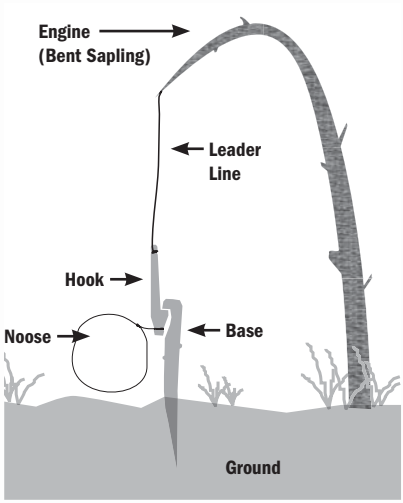
bent-over sapling) provides tension to the hook, which is secured under the base—until an animal disengages the hook by pulling on the noose. The leader line from the hook to the engine can be any type of cordage. The line needs to be strong enough to withstand the initial "spring jerk" and then the weight of the suspended (and struggling) animal.

The hook and the base can be carved from two branches about the diameter of your thumb. I've included a close-up photograph so you can visualize how you need to carve them.

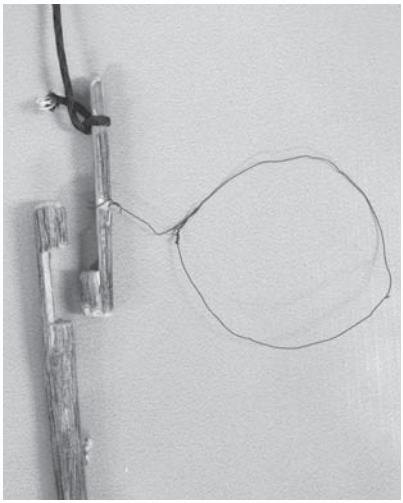
You can also quickly improvise a hook and base from two Y-branches. I've provided a close-up photograph of this as well. You will need to cut them so the smaller hook catches on the larger base. This method doesn't require carving, only locating two Y-branches that will suit your needs and cutting them accordingly.

Thin wire is the best material to use for the noose portion of the snare. However, any cordage can be used, even shoelaces, earphone wires, or hood drawstrings. Here's how to make a noose:

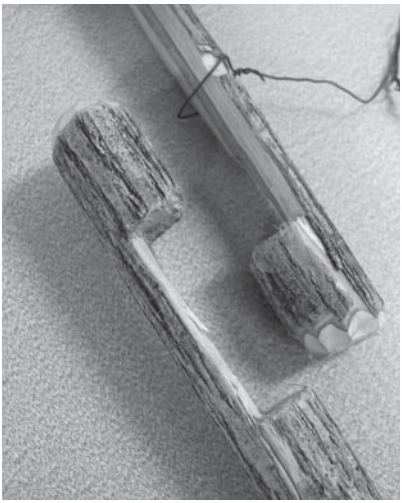
STEP 1: Create a small loop about the diameter of a pencil on one end of



Twitch-up snare diagram



Real twitch-up snare



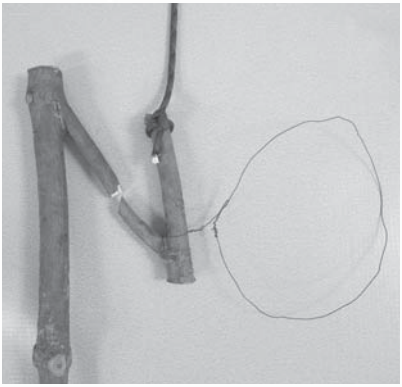
Close-up of carved hook and base

the wire. Bend over the end and wrap the wire back onto itself three or four times to secure the loop.

STEP 2: Thread the other end of the wire through the loop you've just created to form a noose.

STEP 3: Secure the free end to the bottom of the hook trigger by wrapping it around the hook and then twisting the wire back onto itself three or four times, similar to how you made the loop in step 1. When using wire for your noose, no knots are used—only twisting.

The size of the noose depends on the size of game you are trying to snare. For rabbits and squirrel, a noose of 6"–8" (15cm–20cm) in diameter is sufficient. The noose must be large enough to accommodate your target's head and then about 20 percent larger to increase your chances of success.



Y-stick hook-and-base trigger system

As long as it will hold the struggling weight of your target animal, the leader line can be almost any kind of cordage. I tie the leader line to both the hook and the engine with a knot called the double half hitch, also known as two half hitches. I've

Double half hitch illustration

provided a photo to illustrate how to tie this binding hitch knot. I have also filmed a video demonstrating how to tie this knot at willowhavenoutdoor.com/double-half-hitch.

This same trigger snare principle can be used with a hook and line for fishing as well. Instead of using a noose, attach your fishing line to the bottom of the hook trigger using a standard fishing hook knot. When a fish pulls your line and disengages the trigger, the engine will pull and set the hook in the fish's mouth. Make sure your trigger hook is just barely set so the slightest tug from a nibbling fish engages the engine. I have also filmed a video demonstrating how to tie a standard fishing hook knot at willowhavenoutdoor.com/fishing-hook-knot.

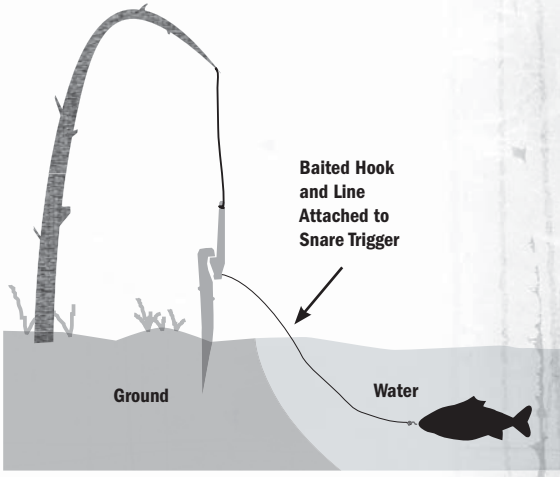
SURVIVAL QUICK TIP

DRY-BRANCH TRIGGERS

When carving your hook-and-base trigger system, do not use green wood. The sap from *green* branches will nearly glue the two triggers together and make them more difficult to dislodge. Use only dead, dry, solid branches.

Fish Spear/Gig

If you don't have traditional, modern fishing equipment, you can craft some primitive fishing gear—a spear.



Twitch-up snare modified for fishing

I prefer to call this *gigging*. When I think of a spear, I think of a large throwing spear for hunting big game like boar. It's fairly easy to make a primitive fish gig that is also perfectly suited for gigging other small-game animals such as frogs and snakes. A fish gig is a great hunting tool to have on hand and can serve as a walking staff as well. Here's how to make a small-game hunting gig:

STEP 1: Find a sapling that is between 6'–8' (2m) long and about 1" (3cm) in diameter and trim all the branches off it. I love using willow saplings for gigs, and they typically grow near water anyway.

STEP 2: Use a knife or sharp rock to split the thicker end of the sapling. Split down the middle of the shaft about 10" (25cm).

STEP 3: Turn your knife perpendicular to your first split so it forms a cross in the center of the shaft, and make a second split as deep as the first.

STEP 4: Find two small sticks. Wedge one at the bottom of the first

URBAN SURVIVAL

TWITCH-UP PERIMETER ALARM

The general principle of a twitch-up snare can be modified in all kinds of ways, including to make a perimeter alarm. Attach empty pop cans to the leader line and, instead of a noose, tie off a trip line to the trigger stick that crosses a trail or doorway and is then hooked to a stake or other solid object. When someone (or something) triggers the trip line, the engine flies up and the cans make all kinds of noise.

Twitch-up perimeter alarm set just outside the doorway to a Bug Out hideout

Close-up of trigger system

Maple sapling for a fish gig

Split and spread gig tip

split. Then wedge the other stick at the bottom of the second split so they make a cross. These small sticks spread the end of the sapling into four prongs.

STEP 5: Sharpen each of the four prongs to a fine point.

STEP 6: Strip the bark from the sapling to create bark cordage and use it to lash the base of the split. Lashing the base of the split prevents it from splitting further. You don't need to lash the gig if you'll be using it for only a short time, but if you think you'll use the gig for a while, it will hold up better if you lash it.

Using your camouflage skills, use your gig to spear or pin small game, such as fish and frogs.

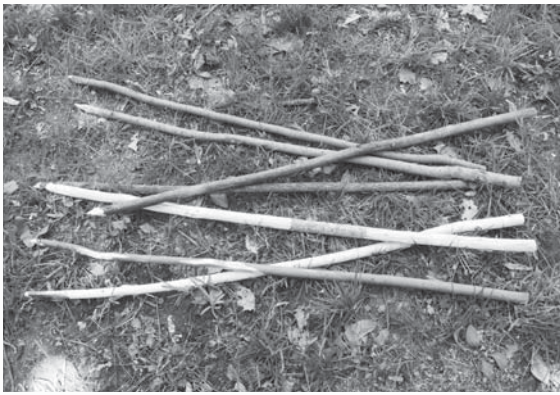
Sharpened and lashed fish gig

Fish Trap

With a little effort, you can make a primitive fish trap called a *funnel trap*. This style of fish trap is perfect for passive fishing while you are setting up camp or sleeping. Toss it in the nearest water source and keep your fingers crossed. I typically use willow saplings, though you can use any type of wood. Conveniently, willow almost always grows near water.

I'm going to show you how to make a field-expedient (less than 1 hour) funnel trap using willow and

Creek gigging in stream



Seven willow sticks trimmed to 4' (1m) in length

scavenged urban supplies, such as garden hoses and exterior phone lines. This trap, when not in use, could double as an improvised backpack. Here's how to make it:

STEP 1: Cut seven willow saplings between ¼"–1" (1cm–3cm) in diameter. Trim all the branches from them. They should each be between 3' and 4' (1m) long.

STEP 2: Sharpen one end of each sapling and stab them in the ground to make a cone shape.

STEP 3: Using any kind of flexible cordage or vine, weave around each stick, starting at the bottom and working your way up in an over/under pattern.

STEP 4: Tie off and secure the cordage once you reach the top. Pull the trap from the ground and weave extra cordage around the bottom to close off the smaller end of the trap. This is the main body of the trap. Now it's time to make the cap.

STEP 5: This cone is the cap (entrance) of the trap. This small funnel will direct fish into the trap but make it very difficult for them to exit in the opposite direction. Make the cap in the exact same way that you made the body. The small end should have an opening of about 4"–6" (10cm–15cm). The large end should be the exact same size as the large opening of the main body.

STEP 6: Place the cap in the body of the trap, as if you were stacking them with both small ends pointing the same direction. Line up the body and the cap as shown. Lash these together with cordage. With this configuration, fish can swim into the trap but are unable to find their way back out.

STEP 7: Hang your bait from the

Willow sticks sharpened and stabbed into the ground to make a cone shape

Continuing the weave using scavenged garden hose

Weaving under/over willow sticks with scavenged garden hose

Smaller end of the trap closed off using extra cordage

center of the trap. You can smash up insects and tie them into a little fabric pouch. Envision an insect tea bag. Place a small rock in the pouch so it doesn't float, but rather dangles in the center of the trap. Place the trap in an area where you've sighted fish. Tie

Cone cap weaved in the exact same way as the main body

Traditional vine funnel trap with bluegill inside

Assembled field-expedient Bug Out funnel trap

Creek using the funnel trap as a makeshift Bug Out Bag (supplies stashed inside)

it to a tree or root so it doesn't float away and check it every few hours. You may have to weight the trap down with a rock.

Birding Tools

When you go outside, what is the one animal you see most often? That's right, birds. Birds of all different kinds and colors: cardinals, robins,

URBAN SURVIVAL

MAKE A SODA CAN HAND FISHING REEL

Except for the line and bait, a soda can offers all the elements you need to make an impressive survival hand-reel fishing kit. As you can see in the photo, you can clip the tab using the snips on your multitool to make a functional barbed hook. Store the bait inside the can by plugging the hole with a pinecone or carved plug. Then reel in the line by winding it up on the can.

Urban soda can hand reel

pigeons, sparrows, starlings, finches, and the list the goes on. In normal life, it's illegal to kill most native bird species. These rules take a backseat when your life is on the line in a survival scenario. And they all taste like chicken!

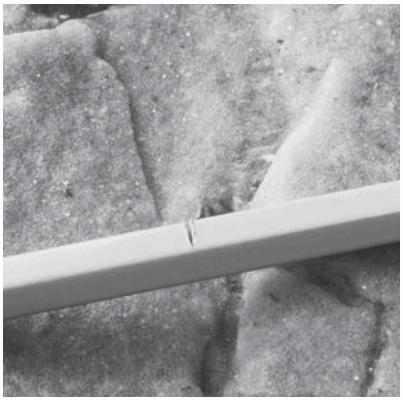
Birds are the most plentiful wild animal but can be very tricky to catch, until now. I want to show you an incredibly simple bird trap trigger for your survival toolbox. I'll first show you how to make the trigger, and then I'll show you (using a variety of cages) how to set the trap.

The first step is to make a trigger stick I call a *2-notch trigger*. It is incredibly simple to make. Find a stick about the length and diameter of a pencil. In fact, I'll use a pencil in this tutorial. Then, right in the middle, make a cut halfway through the stick. You can cut it with a knife or even a small saw. I used a flint Hoko knife to make this cut.

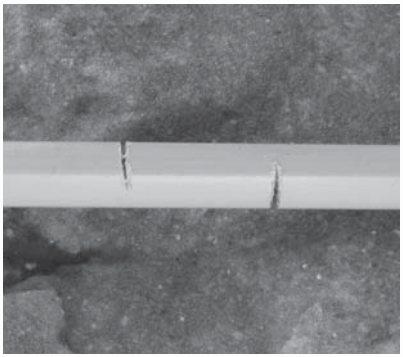
Next, turn the stick over and move down about ½" (1cm) and make another cut halfway through on this side.

With your thumbs near each cut, simply snap the stick. It will snap as two perfectly notched and fitted pieces nearly every time. This is your finished trigger system, believe it or not.

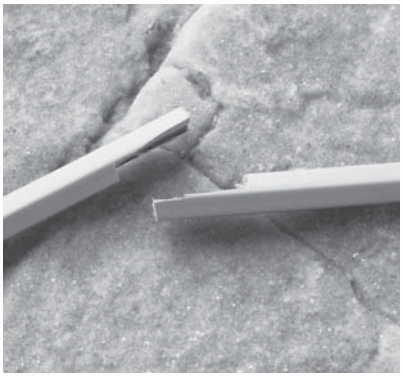
This trap is designed to be a deadfall live-capture trap, and your creativity is the limit when it comes to the cage used. In the photo series here I'm using an old milk crate. I'm demonstrating how to set and bait it on a black sheet so you can see the detail in the photos.



Cut made halfway through one side of the stick



Second cut made



Two perfectly notched pieces

STEP 1: Tie two pieces of any kind of thin cordage to the lower trigger stick. This can be anything from sock threads to dental floss to plant fibers. It doesn't have to be string.

STEP 2: Tie the other ends of the cordage to the back two corners of the deadfall cage. The cordage should allow the trigger to sit just under the front lip of the cage.

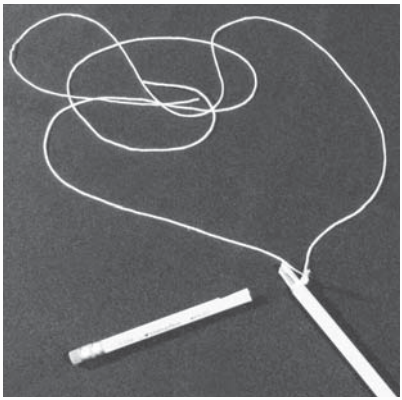
STEP 3: Now, fit together the trigger stick and use it to prop up the cage. The trip lines to the back of the cage should be taut.

STEP 4: Sprinkle bait under the cage. When birds go after the bait, it will be impossible to avoid the little trigger lines. One little misstep and the cage comes down.

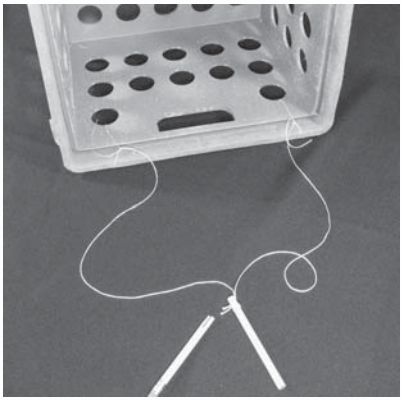
Birds are very curious and will investigate almost anything in search of food. Birdseed scavenged from urban feeders is an obvious choice, but any natural food will work as well: berries, rose hips, dead insects, plant seeds, and human food scraps. If there is snow on the ground, crushed charcoal will draw birds to investigate.

All types of things can be used as cages. Below are just a few:

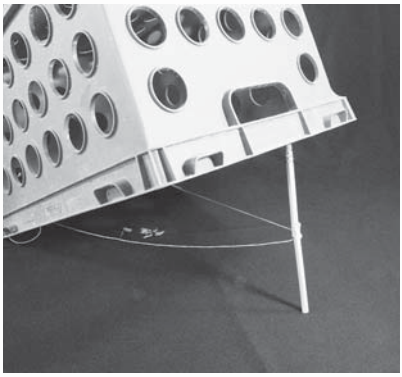
- Large bowl
- Colander
- Fish net
- Bucket
- Box



Two pieces of dental floss tied to the pencil trigger stick



Loose ends of cordage tied to the back two corners of the cage



Cage trap set and baited with seed

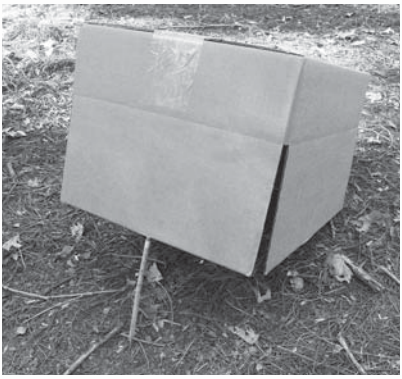
Bird trap set using a fish net

A natural cage can be made from sticks and two pieces of cordage. This is a pretty cool trick.

STEP 1: Start with two sticks connected to two pieces of cordage at each end like shown.

STEP 2: Twist the sticks to form an X with the cordage. The result should be a fairly square shape.

STEP 3: Feed nice straight sticks



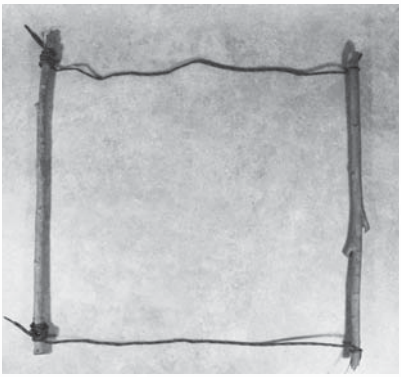
Bird trap set using a box

one by one in a log cabin-style format under the cordage as shown.

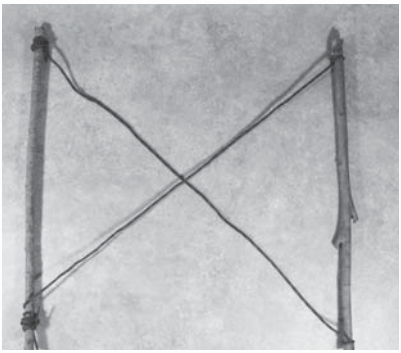
STEP 4: Continue to build the cage in a pyramid shape. The tension from the cordage will hold the sticks in place.

STEP 5: Continue building until you can't fit any more sticks under the cordage. Now you have a finished cage!

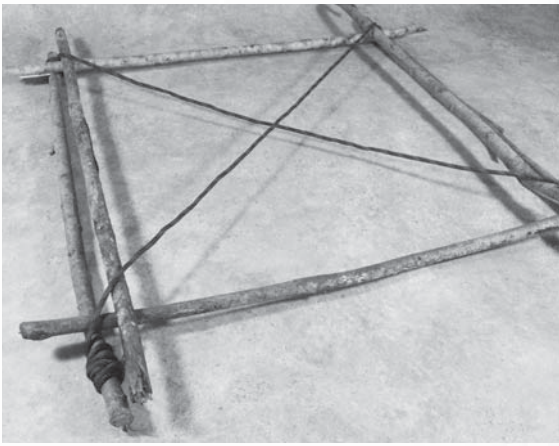
When a bird is trapped inside, simply lift the cage enough to carefully reach inside and grab it. The most humane way to kill a bird once captured is to cut its head off. Place the neck against a solid piece of wood and draw a cutting tool cleanly across in a steady swift motion.



Two stick, two pieces of cordage



Twisted to form an X

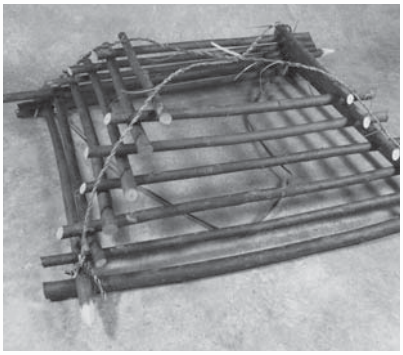


Cage being built using willow and natural yucca sticks

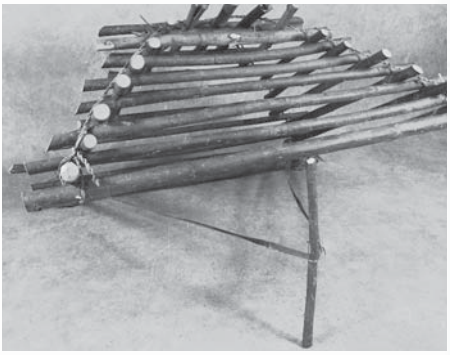
Lizard Stick

Lizards are native to many areas across the south and southwest United States. Some areas are loaded with them. They are incredibly fast and skittish little critters. They are also entirely edible. Lizards (and all reptiles) manage their body temperature by soaking up the heat of the sun. This is a great time to capture them by using a lizard stick.

A lizard stick is simply a long pole with a tiny fishing line noose on the end. The noose is slipped over the lizard's head and a quick jerk is all it takes to cinch the noose tight for easy capture. Several lizards



Cage being built one stick at a time



Finished cage

Don't forget eggs! In spring, nests may be a quick source of food like this bird egg being fried on a hot rock

This Canada goose egg has already hatched – there may be others nearby

Gut a crayfish by pulling out the central fin on the tail, the digestive tract will follow, stab it behind the head to sever the spinal cord first

Quick and easy crayfish meal cooking on skewers over the fire, you can also boil crayfish for four to five minutes to cook

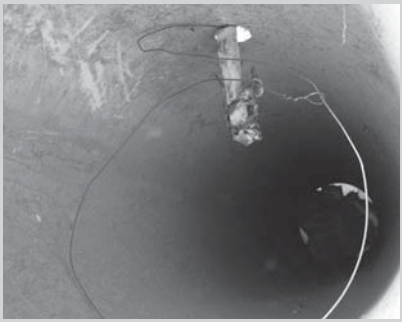
URBAN SURVIVAL

PIPE TWITCH-UP SNARE

Want a good urban rattrap? Try this version of the twitch-up snare using a salvaged piece of pipe. Make a hole in the top of the pipe. The snare trigger hooks in this hole. In essence, the hole is the lower part of the trigger system. Tie a noose onto the upper trigger and feed it through the hole as well. Tie a piece of bait to the bottom portion of the trigger stick and position the noose in front of the bait.

When an animal wiggles the bait stick, it dislodges from the hole and the noose grabs the animal and pins it against the top of the pipe. This is a great trap for rats and possum. The opposite end of the pipe must be blocked, and the pipe must be weighted down to withstand the upward tension from the sapling (or similar) engine.

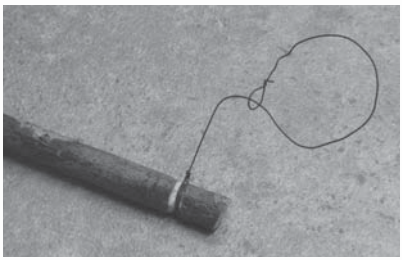
General set-up of an urban pipe trap



View of the noose and bait from inside the pipe

make a hearty little meal. Just remove the guts and cook everything else.

You can also catch snakes this way, but I find a long club is more efficient for snakes—even poisonous ones. If you don't know whether a snake is poisonous, *it's poisonous*.



Close-up of a noose at the end of a lizard stick

Primitive Fishhooks

Primitive Hook 1: Gorge

A gorge isn't actually a hook at all. The name is an indicator of function. A gorge is something the fish actually eats, and when baited properly, the

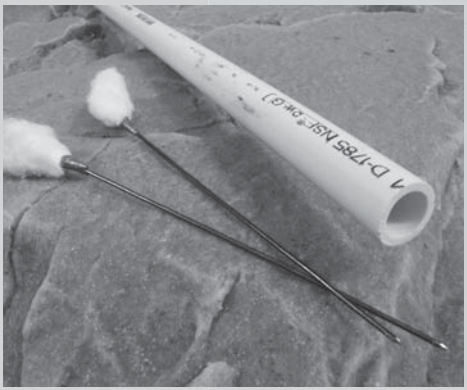
URBAN SURVIVAL

MAKE A SMALL-GAME BLOWGUN

I grew up shooting blowguns and know firsthand that they can take small game, especially birds. If you're lucky enough to get your hands on some PVC tubing (or any smooth, hollow pole), then it's very easy to make a very accurate and effective survival blowgun.

The darts are easy to make. For my PVC blowgun, I make my darts from wire hangers. I use the wire snips on my multitool to cut a straight 8" (20cm) section of wire. Sharpen the dart tips by rubbing them back and forth on concrete or even an abrasive rock.

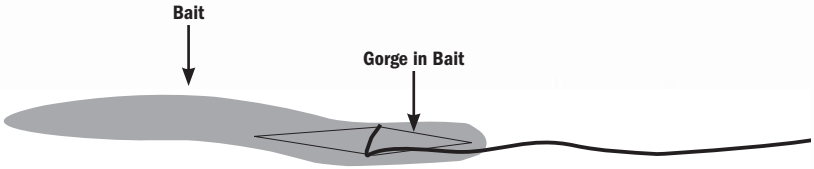
I then use a thin strip of duct tape to tape a tuft of cotton ball about the same size as the hole in my blowgun as a fletching to the unsharpened end of the wire. The fluffy cotton is exactly what the dart needs to be propelled through the tube and to fly straight toward your target. With a little practice, you can become incredibly accurate even with makeshift darts. I can easily hit a quarter at 5 yards (4m).



PVC blowgun with cotton-fletched wire hanger darts

gorge catches in a fish's throat, preventing the fish from slipping off the fishing line. A gorge must be baited in parallel with the fishing line so that when the line is tugged, the gorge pivots and catches in the fish's throat or mouth. The gorge and line are inserted into the bait as shown in the diagram, concealing the gorge inside.

A gorge can be made from a thorn, a carved piece of wood, a little piece of metal, or a carved piece of bone. I've had the best success with bone. One scavenged piece of bone



Baited gorge diagram

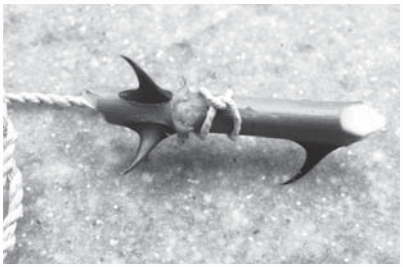
Primitive fish gorge made from bone

can yield many fishing gorges. Carve your chosen material so both ends have very sharp points that will catch in the fish's throat.

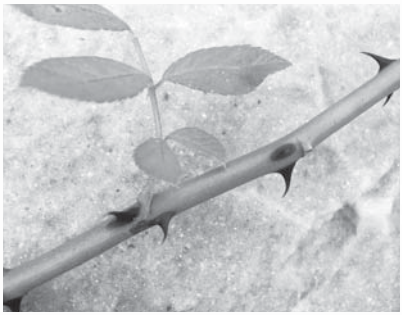
Primitive Hook 2: Thorn

Thorns make excellent fishing hooks. They aren't great for large fish or for long-term use but are capable of bringing in small fish and bluegill. I've made hooks with thorns from locust trees and wild rose bushes.

The hardest part of fishing with primitive gear is getting your hook



Rose thorn double hook woven into natural cordage



Wild rose bush thorns

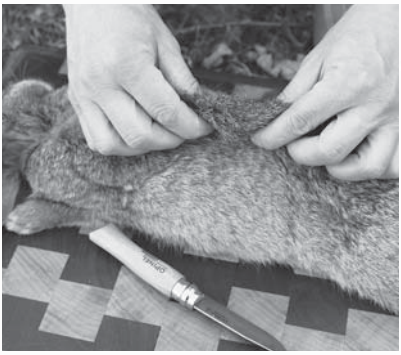
Locust tree thorns

Locust thorn hook tied with an inner strand of paracord

tied on your line so it's sturdy and stays in place. When you're looking for thorns to use as hooks, it's important to choose a thorn that has another thorn or nub along the stem to act as a stopper for your fishing line. I've taken several close-up photos of thorn hooks I've gathered to aid in your selection process.

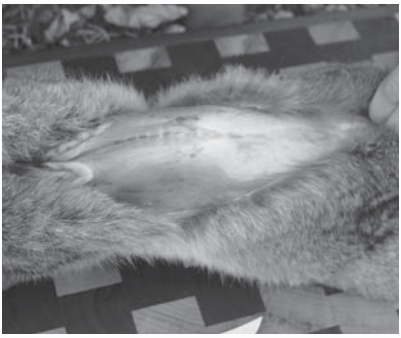
FIELD DRESSING

It's important to have a basic understanding of how to field dress small game if your goal is to be a well-rounded survivalist. In reality, after you've done it once with an animal, you can probably figure it out for other animals. Following is a photo series of what I consider to be a field-expedient method for field dressing three types of animals: a rabbit, a quail, and a bluegill. Almost all small-game animals, from squirrel to rats to raccoon, can be field dressed exactly like a rabbit, with minor differences. Every bird I can think of can be field dressed exactly like a quail, and fish are all pretty much the same. Just a personal tip: Fresh roadkill animals make excellent candidates for practicing small-game field dressing.



Rabbit: Step 1

Rabbit: Step 2



Rabbit: Step 3

Rabbit and Similar Small-Game Animals

STEP 1: Pinch the skin on the top of the back and make a slice through the hide until you see the muscle or fat below.

STEP 2: Insert your fingers as

Rabbit: Step 4

Rabbit: Step 5

Rabbit: Step 6

Rabbit: Step 7

Rabbit: Step 8

Rabbit: Step 9

shown and pull in opposite directions. Rabbit hide is very thin and will just tear. A knife may be necessary for larger small-game animals.

STEP 3: Continue working the hide away from the body toward the front and back of the animal.

STEP 4: Continue skinning.

STEP 5: Pull the hide off each foot and up around the neck. The hide will tear off at the ankles with most animals.

STEP 6: Cut off each foot at the ankle, and cut off the head.

STEP 7: Turn the animal on its back and cut a hole in the abdomen large enough to get two fingers inside. Be careful not to puncture the digestive tract. Using your two fingers to lift the skin, cut upward toward the sternum. You'll be able to cut through the sternum for many small animals, but this may be difficult for larger small game. I typically cut all the way to the neck when possible.

STEP 8: Insert two fingers all the way to the top of the chest cavity. With a raking motion, use your fingers to pull the chest organs and entire digestive tract from the abdominal cavity. You may have to cut through the pelvis to get the last few inches (centimeters) of the large intestine.

STEP 9: Trim any miscellaneous fatty pieces or abdominal lining remnants, and wash clean with water.

Quail and Any Other Type of Bird

STEP 1: Using your index finger and thumb, pinch a group of feathers. It doesn't matter where.

STEP 2: In a fast, steady motion, pull the feathers backward against the direction of their natural growth. They should pull right out of the skin.

STEP 3: Continue plucking feathers in this manner all over the bird.

STEP 4: After all the feathers are removed from the body, cut off the feet, head, and wings. If the wings are large enough to eat, leave those on and pluck them as well. Small wings should be removed.

STEP 5: Turn the bird onto its back and make a cut through the skin large enough to get a couple fingers in just below the breastbone. Be careful not to puncture the digestive tract.

STEP 6: Insert two fingers all the way to the top of the chest cavity. With

Quail

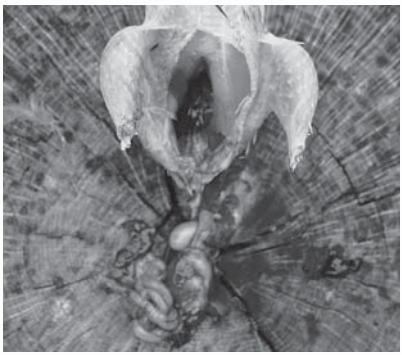
Quail: Step 1

Quail: Step 2

Quail: Step 3

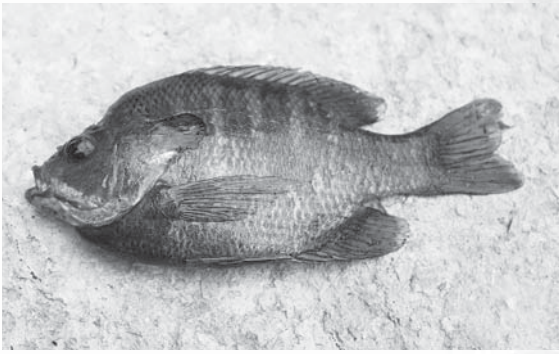
Quail: Step 4

Quail: Step 5



Quail: Step 6

a raking motion, use your fingers to pull the chest organs and entire digestive tract from the abdominal cavity. You may have to cut through the pelvis to get the last few inches (centimeters) of the large intestine. Remove any feather remnants and then rinse inside and out with water.



Bluegill fish

Bluegill and Pretty Much Any Type of Fish

STEP 1: I typically remove the scales if the fish has them. I leave the skin on with fish that do not have scales. The scales are easily removed by scraping against them backward with a knife or sharp rock.

STEP 2: Starting at the anus, cut a slit in the belly toward the front. I typically open the entire bottom of the fish, but only a few inches (centimeters) are necessary. A larger cut makes for easier gutting and cleaning later.

Fish: Step 1

STEP 3: Insert one or two fingers all the way to the top of the chest cavity. With a raking motion, use your fingers to pull out the chest organs and entire digestive tract.

STEP 4: Wash inside and out with water. I almost always leave on the fins and head. They are easily removed after cooking.

Fish: Step 2

An easy way to cook a fish is simply to put a stick through the mouth and roast it over a fire. Cooking fish

Fish: Step 3

Fish: Step 4

Cook fish over fire by inserting a stick in the mouth

in coals wrapped in burdock leaves is also an excellent cooking method.

Field-Dressing Notes

I typically eat the heart, kidneys, and liver of the small herbivores (those that eat plants and nuts) I butcher. I do not eat those parts in animals that are omnivores or carnivores. Always inspect the liver to make sure it is a deep red with a consistent coloring. A discolored or spotted liver can be a sign of disease in an animal, and I would not recommend eating it if this is found.

Killing, gutting, and cleaning small-game animals certainly isn't my favorite part of survival, but it's important knowledge. For many, this process is a mystery, because grocery stores and restaurants present most of our food after the dirty work is done. This process is a reminder of where

Bake fish in the coals of a fire by wrapping in green nonpoisonous leaves

my food comes from and helps me to not take it for granted.

FIELD-EXPEDIENT COOKING TIPS

Below are a few field-expedient small-game cooking techniques that will serve you well in a Bug Out scenario.

How to Make a Roasting Spit

When it comes to roasting game over an open fire, a few tips can make this process a whole lot easier. There is an art to making a roasting spit.

You will need two solid Y-shaped sticks to act as supports for your spit stick. Sharpen the bottoms of these sticks so they can be hammered into the ground.

The spit stick that holds the game needs to be a branch cut from a fresh, green, nonpoisonous tree, such as maple, oak, hickory, or sassafras. For the photos on page 190, I cut a stick that has forked branches on one end and also has a couple branches in the middle. Take your time and search for a branch that has these same features. This style of branch is very important because it lets you wedge your game against the little branches in the middle so the game doesn't spin while the stick is rotated over the fire. If your spit stick has these mini skewers, you won't need cord or wire to hold your game in place. The branches on the ends allow you to place positioning stakes in the ground on each side, which can hold the spit exactly where you want it. This frees you to do other things while your food cooks instead of babysitting the cooking spit.

SURVIVAL QUICK TIP

LIVE MEAT STAYS FRESH!

If possible, keep wild game alive until you are ready to eat it. You can string fish through the mouth and gill on a length of natural cordage and leave them in the water with the cordage tied to something on shore until you are ready to eat.

Two sharpened Y support sticks

EDIBLE INSECT GUIDE

Believe it or not, most insects are edible. However, some major classes are more popular than others. Beetles rank number one. Caterpillars, bees, ants, wasps, cicadas, grasshoppers, termites, locusts, crickets, larvae, and grubs fall closely behind. Insects are rich in protein, minerals, vitamins, amino acids, and fats. They are surprisingly comparable to beef and fish in the amounts of these nutrients.

Here are some basic guidelines that should be observed when dining on insects in the wild.

AVOID BRIGHTLY COLORED INSECTS. Typically, bright colors are warning signs in nature. This is no exception when it comes to insects. A brightly colored insect is nature's way of saying "back off." Choose insects with natural earth tones if given the choice.

AVOID HAIRY INSECTS. Hairy insects can irritate the mouth and throat. Oftentimes, hairs can also be disguised as stingers. It's best to avoid insects that appear to be fuzzy or hairy.

AVOID SMELLY AND PUNGENT INSECTS. Scent is another natural warning. If the insect stinks or sprays some kind of stinking liquid, avoid it all together.

COOK ALL INSECTS. Though some insects can be consumed raw, it's always best to cook them (and any other wild game).

Fat- and calorie-rich beetle grubs

Many insects contain parasites, and cooking can put your mind at ease. Cooking also softens hard shells and helps to eliminate the "ick" factor of squishy guts.

AVOID INSECTS THAT FEED ON POISONOUS PLANTS. Snails and slugs are notorious for dining on poisonous mushroom and fungi. Although the snails themselves are edible, the stuff in their system might not be and could cause you problems. The solution is to starve the snails for a day or so to evacuate their digest tracts. Don't take any chances. The calorie reward isn't worth the risk.

SURVIVAL QUICK TIP

KEEP PREDATORS AT BAY

In a survival situation, yours won't be the only hungry belly you need to worry about. Large predators, such as cougar, bear, and wolf, will be attracted to any food you prepare or eat in the wild. Protect yourself and your food by doing the following:

- Always field dress wild game at least 200 yards (180m) from your camp. The smell of blood and entrails can attract predators that might consider you a meal.
- Place any leftover food in a container or bag and hang it from a high branch at least 100 yards (91m) from where you camp to keep out scavenger animals.
- Properly and thoroughly clean your cooking utensils to keep them sanitary and remove the smell of food. Pinecones, horsetail, sand, snow, and reindeer moss all make excellent natural pot scrubbers.

The Art of Stew

Making a stew is definitely the best way to get as much as possible from cooking wild meats. The resulting stock from boiling and simmering wild meats is packed full of fatty juices that would otherwise be lost as drippings during most other primitive cooking methods.

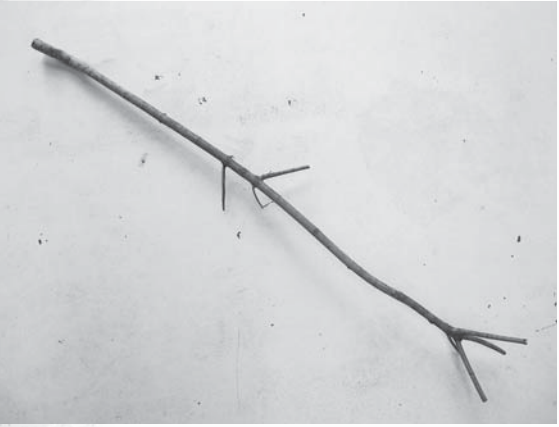
Making a stew is pretty basic and is the easiest of all primitive cooking methods if you have a viable pot. Toss your wild meats (including bones and organ meats) into a pot of water with any wild edible plants you can find, bring it to a boil, and then let it simmer to cook. There are three methods to cooking stew over an open fire.

The first method is to hang your pot from a tripod if the pot has a bail. This is the method I prefer because the tripod allows you to easily lower or raise the stew pot to control the cooking temperature.

The second method is to place two larger rocks (roughly the same height) on either side of your fire (your fire will need to be narrow) and balance your stew pot between both rocks so the fire is beneath the pot.

The third method is the same as the second except you use two small logs to support a stew pot for cooking. This is an old mountain man trick.

Suspending pots and pans over the fire can be tricky, especially if the pots are improvised and don't have



Green roasting spit stick

Squirrel on a spit over fire (notice how the mini skewers hold it in place)

traditional handles or bails designed for outdoor cooking. A great way to suspend a pot or pan over the fire is to use three or four metal stakes as a makeshift platform. In this case, three metal tent stakes are the perfect height for cooking over a small fire.

Primitive Bug Out Jerky

Dehydrating meat (and even plants) is a very important primitive survival skill. Meat preservation during cold months isn't that big of deal, but in warmer climates, meat can spoil in a matter of hours. Rather than having to consume the entire kill in one sitting, meat can be made to last for weeks and even months by simply dehydrating it. I'll often dehydrate thin strips of meat over a smoky bed of coals in as few as six hours. This could be done overnight at camp during a

SURVIVAL QUICK TIP

RABBIT STARVATION

Have you ever heard of "rabbit starvation?" Wild rabbits are one of the leanest animals on the planet. They have little to no fat. A "rabbit only" diet can lead to protein poisoning. We *need* fat to survive. Our bodies can only process so much protein, and eating a diet that consists only of rabbit can lead to what is known as rabbit starvation. The solution? Eat *all* of the animal including the tongue, brain, eyes, kidneys, heart, and liver. These parts, especially the brain, are rich in vitamins, minerals, and fats. Note: Livers from carnivores should be avoided because of high concentrations of vitamin A.

Tadpoles are definitely edible, pop them in a stew pot for added fat and calories

Bug Out if necessary. Contrary to popular belief, this can be done without sun. Having bright sun speeds the process but isn't absolutely necessary. Below are some tips for primitively dehydrating meat.

- Never dehydrate over direct flame. There is a big difference between cooking and dehydrating. You do not want to cook the meat; you want to simply remove the moisture.
- A simple tripod with a lashed shelf is all you need to suspend meat over a smoky coal bed. In fact, you can suspend the meat any way you wish. It doesn't have to be with a tripod. I've used string before as well.
- Cut the meat into very thin strips, no thicker than ¼" (1cm).
- The heat from the coal bed

Cooking stew supported by two logs

Cooking stew supported by two rocks

Cooking stew with a pot and tripod

An urban vent cover makes an excellent grill top for boiling water or making wild stews

Metal tent stakes used as a cooking platform

Laying strips of meat on a tripod rack over fire

Upside down burdock plants placed on tripod to shed drizzling rain

does the dehydrating. You should be able to hold your hand under the meat without having to pull it away because of the heat. This is about the perfect temperature for sucking out moisture.

- You want to have a smoky coal bed. I will often put a big chunk of punky wood (semi-rotted wood) in the coals. This will put off tons of smoke. The smoke is a *critical* element to the dehydrating process. The smoke keeps the insects from getting near your meat. Flies can lay eggs on your meat in a matter of seconds, and the smoke prevents this. *You must have smoke!* It also adds flavor.
- Your meat is done dehydrating when it starts to crack when you

bend it. If it bends in half without cracking, it's not done yet.

Drying meat this way allows you to take it with you without it spoiling. It's a great way to make the most of any animal you may have killed. I feel more comfortable boiling wild jerkys in a stew to make sure it's thoroughly cooked, but I've eaten many wild jerkys with no ill effects as well. Simmering the jerky in a stew will simply rehydrate the meat.

Nature's Tin Foil

Have you ever used tin foil to cook what's commonly referred to as a hobo dinner? It's a great way to cook ground beef, potatoes, carrots, and onions. You just wrap the food in a couple layers of tin foil and bury it in the coals of a fire for an hour or so.

If tin foil isn't available, Mother Nature offers some acceptable substitutes during certain times of the year. My favorite is burdock leaves. Green burdock leaves work perfectly for cooking food in the coals of a fire. Simply wrap your food in several layers of burdock leaves and bind with willow bark (or any bark) and bury it in the coals of a fire. Burdock isn't poisonous, so there's no worry about tainting your food. I've also used maple leaves, dock leaves, and basswood leaves.

Bread Bug Out Style

I love bread. There's nothing quite like fresh baked bread at home or on the trail. I recently added two resealable bags containing premixed dry pancake and waffle mix in my Bug Out Bag. It lasts forever (almost), and I can just add a little water, mix it up, and it's ready to bake in seconds. While baking during a Bug Out may not be practical, here are two ways I love to make bread while on the trail. You may not have these items readily available in a Bug Out, but it's good information to tuck away just in case.

STICK BREAD: Wrapping bread dough around a stick and "baking" it over the fire is a great way to make bread. Choose a nonpoisonous green branch and shave the bark off. I typically use maple. Wrap the bread around the stick and bake it over the coals of a fire until it is golden brown. It requires little attention, and other

Fish wrapped in burdock leaves and tied with basswood bark

Bird eggs and Jerusalem artichoke tubers cooked in burdock leaves

Bird and edible roots cooked in burdock leaves

chores can be done while the bread is browning. This also works great with instant crescent rolls and cinnamon rolls on a camping trip!

ORANGE BREAD: Believe it or not, orange peels make great mini baking pots. Carefully peel the orange so you have two intact half rounds of peel. Fill them three-quarters full with bread mix and bake in the coals of a fire. In a few minutes, you'll have a great orange-flavored roll.

Creek's Bug Out bread mix (Bob's Red Mill 10 Grain Pancake & Waffle Mix)

Stick breads baking over a fire

SUMMARY

Nature is loaded with food options if you know how and where to look. A well-rounded knowledge of wild edible plants, hunting tools, and trapping techniques can be life-saving information during a Bug Out.

Download the reference guide of all the edible plants discussed in this chapter and take it on your next foraging adventure. Go to www.livingreadyonline.com/wild-edible-plants-guide/.

Primitive hunting and gathering skills can be extremely challenging, especially during a stressful Bug Out scenario. The addition of just a few small survival tools can make all the difference to someone without a Bug Out Bag. Let's discuss an idea that addresses just this: the Last Ditch Kit.

Two intact orange peel half rounds

Bread baking in orange peels

Finished Bug Out rolls

7 BUILD A LAST DITCH KIT

For a run-down of what you'll learn in this chapter, watch the video at:
willowhavenoutdoor.com/btpbos-chapter-7.

ONE OF MY STUDENTS actually introduced me to this concept a couple years ago, and I have since incorporated it into my own Bug Out Plan. I've dubbed it the Last Ditch Kit because it is literally reserved as a last-ditch survival effort in the event that the all-important Bug Out Bag becomes lost, stolen, or inaccessible during a Bug Out. Hopefully you never have to use a kit like this, but it's great for peace of mind nonetheless.

BECAUSE YOU JUST NEVER KNOW

I could hypothesize all day about worst-case scenarios that could require someone to ditch their Bug Out Bag en route to a Bug Out Location. Below are just a few:

- You're being chased. Have you ever tried running with a Bug Out Bag strapped to your back? It's not easy and certainly slows you down. Escaping and evading attack from man or beast may give you no other choice than to ditch your Bug Out Bag in order to keep moving. People have narrowly escaped bear attacks by ditching their packs.
- You set up camp on the first night of a Bug Out and take a couple minutes to do a quick security sweep of the surrounding area or search for wild edibles only to come back and find some unsavory people going through your belongings. You decide the best decision is to sneak away undetected and keep moving.
- In a quick and unexpected heist, your Bug Out Bag is forcefully taken by a group of desperate suburbanite soccer moms wielding lacrosse sticks. As they speed off in a minivan, you realize the only items you have left are those hidden out of sight under your clothing.

These scenarios may sound far-fetched, but chaotic disasters create environments of the likes only seen in movies. Anything is possible! In a Bug Out, other people can be just as dangerous as the disaster itself. As I've heard many a survivalist say, "Hope for the best, but plan for the worst."

LAST DITCH KIT

A Last Ditch Kit is basically a mini stand-alone Bug Out Kit. I believe it should be small enough to fit in your hand or worn on a belt. I use a belt pouch (detailed later). A friend of mine uses a small fanny pack worn under his shirt. My student who introduced me to this concept uses a patrol pack that buckles to his main Bug Out Bag and can quickly be

Bug Out Bag (left) and Last Ditch Kit (right)

detached. I've always thought a Nalgene bottle would be a good Last Ditch Kit container.

Regardless of the container, it should be a kit that's kept with you at all times. Many people who have painstakingly assembled Bug Out Bags do not consider the possibility of losing it. Losing a Bug Out Bag could leave them with nothing but their wits and scavenged resources, such as those described in the previous chapters. A few key tools can go a long way!

The Contents

At the bare minimum, a Last Ditch Kit should contain resources for shelter, water, fire, and food along with a few miscellaneous tools. In this chapter I show you my exact kit and discuss the uses for each item I've included. You can decide whether this is something you want to do and what items you would like to include. I'm sure you'll have your own great ideas as well.

Creek's Last Ditch Kit Content List

1. Maxpedition H-1 Waistpack: This 6" x 4" x 2" (15cm x 10cm

Creek's Last Ditch Kit

x 5cm) belt pouch is the container for my Last Ditch Kit. It has a belt loop on the back and also a 5" x 1" x 1½" (13cm x 25mm x 3cm) pocket on the side. It has a Velcro closure and a few divided interior pockets. It is a great size to house the items below. My Bug Out Bag rides very high on my waist, and I can still wear this kit on my belt without it getting in the way of my Bug Out Bag.

2. Leatherman Sidekick: I keep this multitool in the side pocket of the belt pouch. Not only does this tool have a knife, it has pliers, wire cutters, wire stripper, saw, can opener, bottle opener, file, Phillips screwdriver, and flat-head screwdriver. I'm a huge fan of multitools, and no Last Ditch Kit is complete without one.
3. Emergency Heat Sheet: This Mylar survival blanket has several life-saving functions. It can be used as a ground cloth, improvised shelter canopy, fire reflector, and signaling tool. This is an irreplaceable piece of gear in a compact survival

Creek's Last Ditch Kit on belt

N-95 Mask used in an urban disaster

kit and an invaluable sheltering item.

4. Poncho: Although my exterior layer of clothing will be waterproof, I pack a cheap disposable poncho. I've been wet on hiking and camping trips before, and it's flat-out miserable. This is a cheap lightweight added layer of security that can also serve as a moisture barrier above or below an improvised shelter.
5. N-95 Debris Mask: These not only protect from dust, debris, and contagions, but they also make breathing in extreme cold much more comfortable.
6. First-Aid Kit: I include a very simple first-aid kit with a few bandages, moleskin (for blisters), Dramamine pills, aspirin, anti-diarrheal pills, Tylenol, antiseptic wipes, and insect repellent. Without insect repellent, mosquitoes and ticks can make you wish you were dead.
7. Aquamira Straw Filter: This straw-style water filter can filter 99.99 percent of biological threats from 20 gallons of water. It's as simple as drinking through a straw and eliminates the need for a container.
8. Aquamira Water Purification Tablets: Each of these six tablets can purify 1 liter (33 ounces) of water.
9. Nonlubricated Condoms (quantity 2): These are nearly the perfect-size container for the 1-liter purification tablets listed above. These allow me to store water and carry water if necessary.

10. Corsair Padlock USB Drive: This drive contains copies of all of my personal documents including driver's license, Social Security card, and insurance paperwork. I used to carry this in my Bug Out Bag but have relocated it to my belt pouch for safekeeping. This particular USB drive is secure, and one must enter a pin code to access the documents.
11. Cash: I also relocated some cash from my Bug Out Bag to my Last Ditch Kit.
12. Fishing Kit: Fish are the most readily available wild game in my part of the world. A small fishing kit can secure a meal in just a few minutes. This includes a variety of hook sizes, 25 feet (8 meters) of line, a bobber, and a few sinkers.
13. Light My Fire Mini Firesteel: This fire striker can be used to ignite natural or man-made tinder in virtually any weather condition.
14. Fire Fuses: I pack Baddest Bee Fire Fuses, but cotton balls saturated with petroleum jelly work extremely well too, burning upward of 8 minutes.
15. Disposable Lighter: There is no substitute for a disposable lighter in a survival scenario. It's simple, cheap, and effective.
16. Duct Tape: I keep several feet (meters) of duct tape wrapped around a disposable lighter. I can use this for a variety of functions, including fire starting. Duct tape is in-

36 ounces (1 liter) of drinking water in an emergency water bag

Corsair Padlock USB Drive

Fresnel lens being used to smolder deer poop

credibly flammable and burns ferociously.

17. Carmex Lip Balm: Not only am I addicted to lip balm, but this petroleum-based product can be used as a fire aid when mixed with natural-found fire tinders.
18. Fresnel Lens: This credit-card-sized magnifying lens allows me to focus sun rays to start a fire.
19. Mini Key Chain LED Flashlight: A flashlight is imperative to working in low-light or nighttime conditions. It can also be used as a nighttime communication or signaling tool.
20. High-Calorie Bar: A quick "open and eat" meal can be a real pick-me-up-when you are down on your luck.
21. Pepper Spray: I keep a small canister of pepper spray in my Last Ditch Kit for self-defense. Though a pistol is part of my

Mirror being held by a multi-tool to peek around an urban corner

Bug Out gear, I feel good about having a backup self-defense option in this kit.

22. Whistle: Whether to alert or signal, the sound from a whistle takes far less energy than screaming. It is also louder and can be heard from farther away.
23. Mirror: This can be used for signaling, peering around corners, and looking under doors. I got something in my eye one time on a multiday camping trip and ended up having to cancel the trip because I didn't have a mirror to help me find the item and get it out. I learned that lesson the hard way.
24. 10 Feet (3 Meters) of Wire: Whether for snares or gear repair, wire has tons of survival uses.
25. Compass: A compass is helpful for navigation or staying a straight course.

SUMMARY

I've learned from experience to have backup plans for my backup plans, and this new Last Ditch Kit strategy is a prime example of this type of thought process. A kit like this is also perfect for short day hikes or a glove box survival stash. One big lesson I've learned over the past sixteen years of studying primitive survival skills is that using those primitive skills is best left as a last resort. A few simple modern tools can make a huge difference in time and energy expenditures in the field.

8 CONCLUSION: LET FUN TRUMP WORRY

For a run-down of what you'll learn in this chapter, watch the video at: **willowhavenoutdoor.com/btpbos-chapter-8**.

I FIRST STARTED LEARNING SURVIVAL SKILLS not because I was scared of disaster, but because I thought it was fun. I get joy out of prepping my stock room, practicing wilderness skills, teaching survival courses, and rearranging my Bug Out Bag. Whether it's fantasizing about the Zombie Apocalypse or training for real-life disasters that actually *do* happen, preparedness efforts rarely feel like a chore to me. I'm sure many of you can relate to this.

Disasters are going to happen. Acts of terrorism will continue and probably escalate. People will continue to do unthinkable things. Mother Nature isn't going to stop wreaking havoc on this planet. In fact, natural disasters are statistically larger and more frequent than ever before in our nation's history. The world is going to one day come to an end in a blaze of fire and glory. Are our preparations going to stop any of these things from happening? No, of course not. Yet, we still prepare. We continue to spend time, money, and energy preparing. Why?

Survival and preparedness is fun and gives us hope.

Don't let the depressing 5 o'clock news and Sunday morning newspaper headlines steal your joy or hope. If fun and hope are all you ever get out of preparing for disaster, then it's worth it. Even if you spend your entire life preparing for an event that does not happen, at least you've been joyous and hopeful in the process.

I've found that studying survival skills and preparing for disaster can bring family, friends, and people closer together. It allows us to focus on what we have in common rather than on what divides us. Everyone wants to survive!

NOW, IT'S YOUR TURN

I've taught you a lot of skills in this book—more than you realize. Share them with someone else. Give this book as a gift—a gift that keeps on giving. Teach some of these skills to your friends and family. Heck, teach a survival skill to a stranger! Are you qualified to teach skills? Who cares! I wasn't qualified to teach my first survival course at the age of twenty-one, but I did it anyway. Unlike many life skills, survival skills have lasting value. They can literally make the difference between whether someone lives or dies if ever faced with a sudden and unexpected survival scenario. I think that's pretty cool and something worth talking about.

YOU'LL NEVER BE DONE

I know it sounds a little pessimistic, but it's true. You'll never be done preparing, and you'll never be ready.

Creek's Noncon Pack

None of us will. There is no perfect plan for an imperfect world. You'll never be completely prepared to deal with the craziness that life might throw your way. You can minimize your risk and increase your odds of survival, but your plan will never be perfect, and that is perfectly acceptable. Mine isn't either. Do the best with the resources you've been given.

MY NEXT PROJECT: THE NONCON PACK

You've probably never heard the phrase "Noncon Pack" before. That's because I coined the term, and this book is the first time I've mentioned it publicly. *Noncon* stands for non-consumables. Thus, a pack of non-consumables.

If you've read my first book in this series, *Build the Perfect Bug Out*

Bag, you already know that most Bug Out Bags are designed to get a person or family through 72 hours of independent survival. A Bug Out Bag contains food, water, fuel for cooking, first-aid supplies, and a variety of other resources that are meant to be consumed over the course of a three-day Bug Out journey. Bug Out Bags are a short-term survival solution to a short-term disaster evacuation.

In my never-ending pursuit of preparedness for anything life may throw my way, I couldn't help but ask myself, "What if coming back home is no longer an option?"

What if a three-day Bug Out turns into two weeks or three months or a year? What happens when there is no safe Bug Out Location? What happens when the food, water, water filters, wet wipes, ammunition, and all other consumables in my Bug Out Bag are gone?

I'll admit this scenario is not likely. Most disasters last only a few days until order is restored. However, it could happen. It has happened to many others across the globe. Countless events could displace us for long periods of time. A fuel crisis or electromagnetic pulse (EMP) could shut our country down in a matter of days or even hours. A mega-size regional natural disaster (such as a record-breaking earthquake) could change the face of our nation for an unforeseen amount of time.

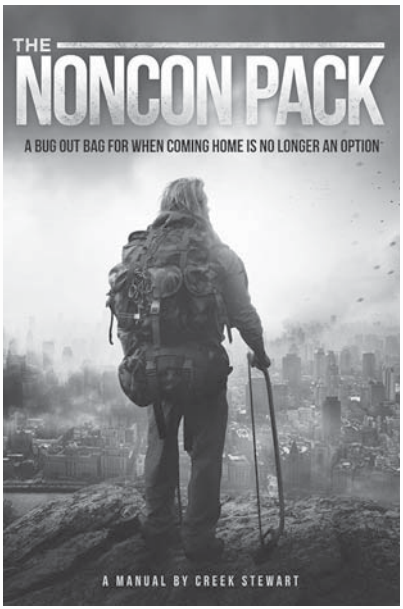
A traditional Bug Out Bag during an event like this would only postpone the inevitable. Once the consumables are gone, it's back to square zero with an empty backpack and a few miscellaneous tools. This situation calls for a pack that contains *zero* consumables: a Noncon Pack. A survivor in this long-term scenario needs resources that can be used to secure consumables.

Here are just a few things a Noncon Pack *does not* contain:

- Food
- Water (or water filters that can go bad)
- Ammunition (at least the kind that can't be reused)
- Stove fuel of any kind
- Fire tinder
- Matches, lighters, or consumable fire-starting tools
- Toilet paper
- The list goes on and on…

A Noncon Pack *does* contain tools and resources for securing these items as well as surviving a long-term Bug Out scenario.

To further elaborate on this topic, I have written an e-book titled *The Noncon Pack: A Bug Out Bag for When Coming Home Is No Longer an Option*. In this downloadable book, I open up my Noncon Pack for all to



The Noncon Pack: A Bug Out Bag for When Coming Home Is No Longer an Option

see. Below is just a short list of objectives my Noncon Pack allows me to address:

- Long-term survival shelters
- Long-term hunting, trapping, fishing, birding, and gathering
- Long-term water purification and collection
- Wilderness survival sleep systems
- Sustainable long-term hunting weapons (and one gun that you won't believe!)
- Extensive wilderness food preparation and preservation
- Gear repair tools and methods, including naturally sourced adhesives
- Tool use and maintenance
- Sustainable fire solutions and practical wood processing
- And more!

This is not a book for the uninitiated. I don't sugarcoat the gravity of a situation that might call for a Noncon Pack. Many of the methods I teach to secure consumables are to be used for survival purposes only. There's a reason this book is in e-book form only: I doubt most bookstores would even stock it. This is not a book for the masses. Most people can't imagine a scenario that would call for the deployment of a Noncon Pack. I didn't write this book for them.

If you've ever asked yourself, "What if everything goes to s#%@, and I have to walk into the woods and never come back home," then I wrote this e-book for you.

More information at: willowhavenoutdoor.com/build-a-noncon-pack/.

I hope you've enjoyed this book! Good luck making your own luck!

Remember, it's not *if* but *when*,

Creek

APPENDIX
SURVIVAL KIT RESOURCES

THIS SECTION INCLUDES resources for finding and using the equipment and materials discussed in this book.

VIDEOS

Chapter video highlights

- willowhavenoutdoor.com/btpbos-introduction
- willowhavenoutdoor.com/btpbos-chapter-1
- willowhavenoutdoor.com/btpbos-chapter-2
- willowhavenoutdoor.com/btpbos-chapter-3
- willowhavenoutdoor.com/btpbos-chapter-4
- willowhavenoutdoor.com/btpbos-chapter-5
- willowhavenoutdoor.com/btpbos-chapter-6
- willowhavenoutdoor.com/btpbos-chapter-7
- willowhavenoutdoor.com/btpbos-chapter-8

Fire video highlights

- How to make fire with a busted disposable lighter: willow havenoutdoor.com/start-a-fire-with-a-busted-disposable-lighter/
- Using the color black to start a solar fire: willowhavenout door.com/black-is-your-friend/
- How to make an improvised parabolic mirror: willow-havenoutdoor.com/improvised-parabolic-mirror/
- The durability of a fatwood pine resin torch: willow havenoutdoor.com/fatwood-pine-torch/
- Using a power drill to get an ember: willowhavenoutdoor.com/urban-fire-drill/

Knot video highlights

- willowhavenoutdoor.com/jam-knot/
- willowhavenoutdoor.com/canopy-shelter-knots/

SHELTER

All-weather super emergency blanket

- www.notifbutwhensurvival store.com

WATER

Water purification systems, tablets, and information

- water.epa.gov/drink/emerprep/emergency disinfection.cfm
- www.aquamira.com
- www.katadyn.com/usen
- www.sawyer.com/water.html
- www.notifbutwhensurvival store.com

FIRE

Ferro rods/fire starters

- www.kodiakfirestarters.com/demonstration/
- www.lightmyfire.com
- www.notifbutwhensurvivalstore.com
- www.selfrelianceoutfitters.com
- www.ustbrands.com/product-category/ust/fire-starters-ust/

Do-it-yourself fire tinder

- willowhavenoutdoor.com/general-survival/the-best-fire-starter-money-cant-buy-pet-balls-dryer-lint-fire-starter

FOOD

Field Guide to Edible Wild Plants: Eastern and Central North America by Lee Allen Peterson

- local bookstores
- online booksellers
- www.notifbutwhensurvivalstore.com

TOOLS

Snare wire/survival traps

- www.thompsonsnares.com
- www.notifbutwhensurvivalstore.com
- www.bepreparedtosurvive.com
- local hardware stores

Survival fishing kits

- www.selfrelianceoutfitters.com
- www.bepreparedtosurvive.com
- local fishing and outdoor retailers

Knives and cutting tools

- www.hedgehogleatherworks.com
- www.notifbutwhensurvivalstore.com
- kosterknives.com
- www.bigrockforge.com

Paracord and paracord products

- www.combatparacord.com
- www.notifbutwhensurvivalstore.com

FIRST-AID KITS AND PRODUCTS

Premade first-aid kits

- www.adventuremedicalkits.com
- www.nitro-pak.com
- www.medcallassist.com

Miscellaneous first aid supplies

- local pharmacy

NAVIGATION AND SIGNALING

Survival whistles

- www.campingsurvival.com
- www.fox40world.com

DISASTER PREPAREDNESS

General information

- www.ready.gov
- www.redcross.org
- www.cdc.gov
- willowhavenoutdoor.com

How to Build a Bug Out Bag

- Book: *Build the Perfect Bug Out Bag* by Creek Stewart (local bookstores, online booksellers, www.notifbutwhensurvivalstore.com)
- www.ready.gov

Web resources for survival articles, information and instruction

- willowhavenoutdoor.com
- www.realitysurvival.com
- thesurvivalmom.com
- apartmentprepper.com
- www.prepperwebsite.com
- foodstorageandsurvival.com
- www.thepreparednessreview.com

Survival and disaster preparedness schools, classes, and training

- American Red Cross, www.redcross.org
- Willow Haven Outdoor, Indiana, willowhavenoutdoor.com

Survival kit resources

- www.notifbutwhensurvivalstore.com
- www.myapocabox.com

Be sure to follow Creek for *free* survival tips! He can be found at:

Website: willowhavenoutdoor.com

Facebook: www.facebook.com/creekstewart

Twitter: @survivalcreek

Instagram: @creekstewart

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ABOUT THE AUTHOR

Creek Stewart specializes in disaster preparedness and has consulted with individuals, corporations, nonprofits, and government agencies all over the United States about myriad preparedness-related subjects, projects, and initiatives.

A lifelong student of survival, preparedness and self-reliance, Creek wrote his first survival manual at the age of twenty-one. Soon thereafter, Creek began teaching survival and primitive skills courses on his family farm in southern Indiana.

He now owns Willow Haven Outdoor, a leading survival-and-preparedness training facility that is 10,000 square feet in size and situated on twenty-one beautiful acres in central Indiana. For information about survival clinics and training courses, visit willowhavenoutdoor.com.

Creek is an Eagle Scout and graduate of Butler University in Indianapolis.

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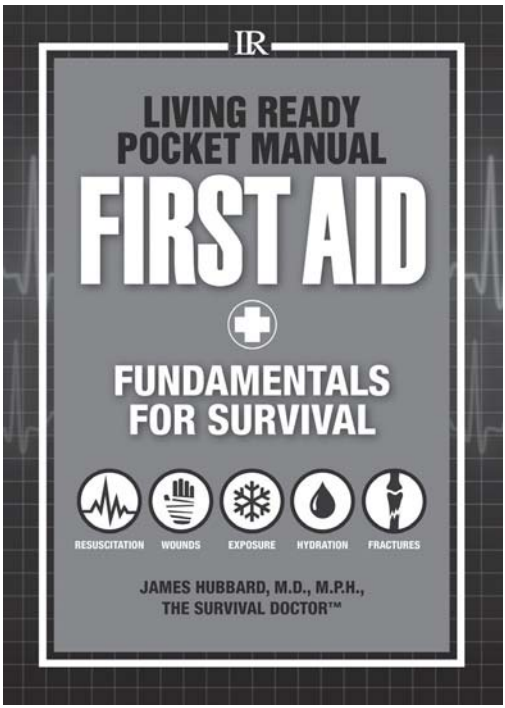

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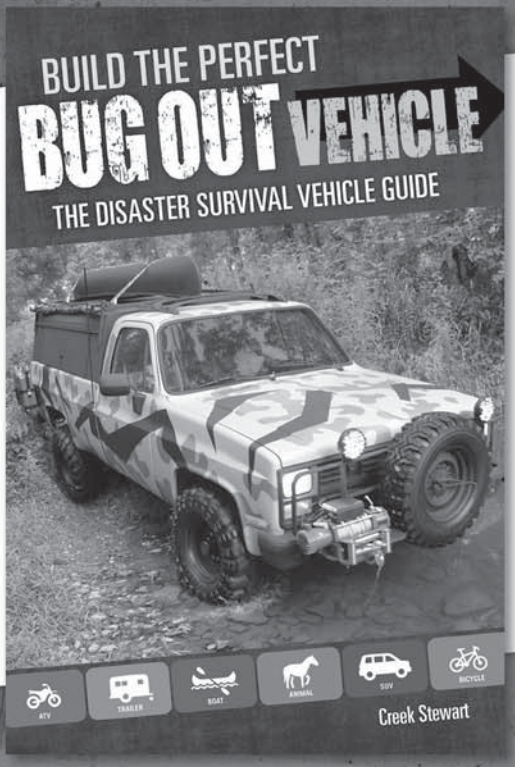

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Creek Stewart is the lead instructor at and owner of Willow Haven Outdoor, a survival, preparedness and bushcraft school. He is the author of the best-selling book *Build the Perfect Bug Out Bag* and has been interviewed in national media outlets including Fox & Friends and Discovery.com.

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ABOUT THE AUTHOR

Creek Stewart specializes in disaster preparedness and has consulted with individuals, corporations, nonprofits and government agencies all over the United States.

A lifelong student of survival, preparedness and self-reliance, he owns Willow Haven Outdoor, a leading survival and preparedness training facility in central Indiana.

Creek is also the author of *Build the Perfect Bug Out Bag*, *Build the Perfect Bug Out Vehicle* and *The Unofficial Hunger Games Wilderness Survival Guide*.

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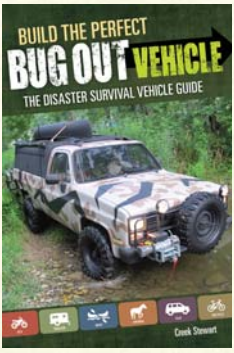

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