

MODERN SURVIVAL  
Field-book Series

Book 3  
Knots & Shelters

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## **About this booklet**

The Modern Survival field-book series has been designed to accompany the on-site course available through the Campcraft Outdoors Field School ([campcraftoutdoors.com](http://campcraftoutdoors.com)) and the online Modern Survival course through the Old World Alliance ([oldworldalliance.com](http://oldworldalliance.com)).

Alone, we believe this booklet series will transmit a great deal of insight regarding modern survival skills and how they will make your outdoor adventures safer, more meaningful and instill and greater confidence in your ability to endure when the worst conditions are against you.

## **5 W's of Shelter Site Selection**

Where we place our shelter, even if only for one night could make or break us in a true emergency situation. The 5 W's will help keep things in perspective- safety is priority number one, then we can look at ease of use, comforts, etc.

***Widow Makers*** refers to those tree tops and large branches, dead tree parts or other natural phenomenon that break off during high winds and storms often getting caught up in the woodland canopy.

Look above you, look closely, to ensure there are no dead branches or broken tree parts hanging anywhere above your proposed camp site. Also look around you to be certain that there are no dead or broken trees that are leaning against another in a precarious fashion that would permit a single high wind to blow them over into your camp. Finally, before you anchor any tarps or hammocks to trees in your camp, look down at the roots to be sure that once weight or force is put on the tree, that it won't fall over on top of you.

***Wind*** is a continual concern as it changes

directions from time to time. Check for the prevailing winds, the most consistent direction the wind blows and make sure that the opening of your shelter doesn't face into the wind. By facing into the wind, you'd have all the smoke and ash from the fire blown into your shelter which is a fire hazard. Not to mention it would keep you too cool throughout the night.

Instead set your shelter to take advantage of the prevailing wind direction for the area. Shelters should be set so as to allow wind to pass between your shelter and campfire.

**Wood** look for a shelter site with access to plenty of for fires and survival related projects. Collect three times the amount of firewood you think you'll need. Scavenging for wood in the middle of a cold night is another hazard we want to avoid. Remember that living trees offer shade, and can serve as a natural wind break but standing dead trees are to be always be avoided

**Water** should be no more than 200yards away and no fewer than 100 yards. Flash flooding can occur unexpectedly in certain areas and by camping a distance away from the water mitigates this potential issue.

Creek and river bottoms tend to stay soggy, retain the cold and are insect magnets, avoid camping there whenever possible.

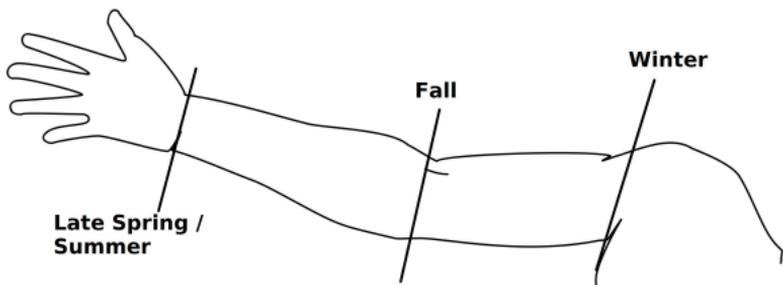
**Wigglers** are those things that creep, crawl, and slither under the leaf litter. Check your shelter site for potential hazards such as snakes, hornets nests, ground hornets, fire ants, etc. so you don't have to make a sudden camp evacuation in the middle of the night.

### **The 5 Mechanisms of Heat Loss**

**Conduction** occurs when you come into direct contact with a surface that's colder than your body. Instead of transferring heat to the environment, you move it into the cooler object. If you're camping, you can lose heat to any surface on which you're sitting or lying. If you don't insulate yourself, you'll get cold when you're lying on the ground. You'll be uncomfortable even when you're sitting on a log or rock.

Conduction happens even faster when you're in the water as the cool water sucks heat away from you at about 30 times faster than the ambient air which is why 70 degree water feels so much

colder than 70 degree air.



When it comes to insulating against conduction, use a hand depth of compressed debris such as leaf litter, moss or boughs in the late spring and through the summer months. By autumn we should use elbow depth of compressed material and in winter a full arms depth. This will create a nice, thick cushion on which to rest through the night.

**Convection** involves losing heat to the environment. However, it requires some air movement to occur. Convection explains why you can cool yourself off while sitting in front of a fan. The circulating air touches your skin. As it does so, it takes away some of your heat. As more cool air brushes by your body, you lose additional heat. This explains why it's so important to shield yourself from windy conditions.

**Radiation** is the transmission of electromagnetic waves through space. We naturally heat our bodies to an average temperature of 98.6° F. We lose an average of 65% of our body heat through radiation as our body tries to equalize the temperature around us, we give off heat which displaces it to the cooler area around us.

Therefore, the more surface area that is exposed to cooler air, the more heat we lose. The fires we make also radiate heat to the surrounding environment such as the trees, ground and of course us. For every meter we move away from proverbial center of a fire we lose about  $\frac{1}{4}$  of the heat from the fire, this is known as the Rule of Inverse Squares. So we should seek to place our shelter location in the sweet spot between too much and too little heat to best manage our core temperature.

**Respiration** is simply breathing. When you inhale air, your lungs absorb oxygen, you exhale but also breathe out air that your body has warmed up. Your core temperature experiences a slight dip when this happens. Compared with the amount of heat that you lose through the other mechanisms it's very minor. However, it can be a significant factor when you're spending time

in cold weather especially while sleeping as this warmed air creates condensation (moisture). This is why you should never cover your head while sleeping, this moisture will accumulate on your blanket or sleeping bag making you wet and potentially colder. Maintain an air hole for good air exchange and to better manage condensation issues.

***Perspiration*** is of course sweat. When you increase your core temperature, you sweat in order to keep your body cool. This is a built-in mechanism that prevents you from overheating. As the moisture evaporates, it cools the surface on which it's sitting. If your skin is wet, it can be difficult to maintain your core body temperature. Although sweating can be dangerous when you're camping in cooler weather, so can moisture of any kind on your skin. If you're exposed to rain, snow or mist, you could be in danger of losing body heat in the same manner.

## The 5 Knots

### *Siberian Hitch (Evenk Hitch)*



*Image Capture courtesy Animated Knots.com*

The Siberian Hitch, also known as the Evenk Hitch, was originally used for tying reindeer to a tree while in mittens by the Nenets people of northern Russia. It was made popular among bushcrafters and survivalists by Ray Mears who used it regularly in his television series. What makes this hitch great is that it holds a load well and releases easily with a simple pull. This is the first knot we tie when setting up our tarp ridge-lines.

## *Truckers Hitch*



*Image Capture courtesy Animated Knots.com*

The trucker's hitch got its name because it's a knot commonly used for securing loads on trucks and trailers. This general arrangement, using loops and turns in the rope itself to form a crude block and tackle, has long been used to tension lines and is known by multiple names. Knot author Geoffrey Budworth claims the knot can be traced back to the days when coachmen and merchants used horse-drawn conveyances to move their wares from place to place. This is the second knot we generally tie when setting up our tarp ridge-line.

## *Double Fisherman's Bend*



*Image Capture courtesy Animated Knots.com*

The double fisherman's knot, also called a necklace knot or grapevine knot, is a bend or knot that joins two pieces together. This knot and the triple fisherman's knot are the variations used most often in climbing, arboriculture, and search and rescue. The knot is formed by tying a double overhand knot, in its strangle knot form, with each end around the opposite line's standing part. We utilize this knot to create the four loops used to secure our tarp to the ridge-line.

## *Prusik Knot*



*Image Capture courtesy Animated Knots.com*

The term Prusik is a name for both the loops of cord and the hitch. A Prusik is a friction hitch used to attach a loop of cord around a rope, applied in climbing and rope rescue. The Prusik hitch is named after its inventor, Austrian mountaineer Karl Prusik.

We utilize this knot to create a point at which our tarps can be attached to our ridge-lines with a tent stake or stick. By sliding the Prusik away from the truckers hitch, tension is placed across our tarp thereby making it taught.

## *Larks Head*



*Image Courtesy SurferToday.com*

Properly called a cow hitch, it has been known since at least the first century when described by Greek physician Heraklas in a monograph on surgical knots and slings. The common alternate name "lark's head" is attributed to Tom Bowling in the 1866 work *The Book of Knots* which is presumed to have been adapted from a French manuscript; lark's head is a literal translation of the French name for the knot, tête d'alouette. We utilize this knot for securing loops to grommets on our tarp. Once secured, we are then able to stake the loose end of our tarp to the ground.

## The 5 Shelter Configurations

All 5 of our shelter configurations can be erected using the same ridge-line system and knots. So once you master the knots associated with the ridge-line, you'll have no need to deviate to other systems.



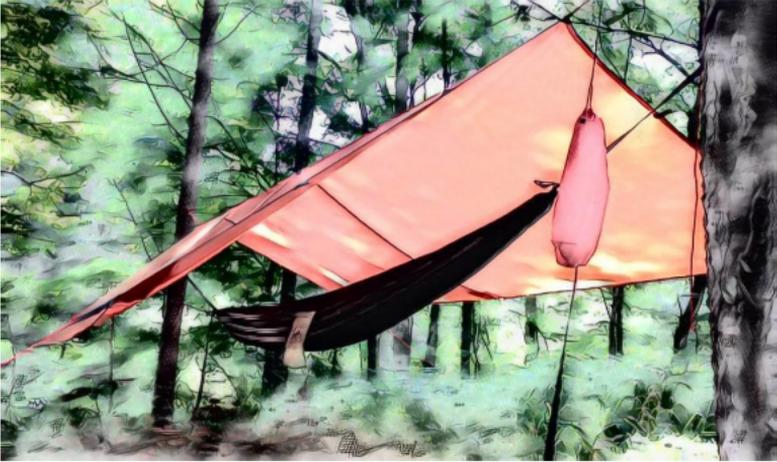
The *Lean-To* tarp shelter is one of the most common shelters we utilize as it is an “on the go” shelter because it’s easy to carry, easy to set up and you can quickly take it down. It provides great wind deflection and it will keep you safe from rain or sun heat. The downside is that this shelter doesn't have sides to offer protection against other elements.



The ***Plow Point*** is another one of the more common set ups we use especially when we need to protect ourselves from high winds and driving rains. The pointed side should face the wind and while there's not much room for your gear, the benefits of being able to better protect yourself from the elements and more easily heat the shelter due to it's smaller interior area far off set the drawbacks.



The *A-Frame* shelter is a great option when you need to minimize your profile, block wind, snow and rain or treat an injured patient. When using a 10' x 10' tarp, a 30-degree angle of the tarp's roof will create a ten foot-long area that is 8.6 feet wide and 2.5 feet tall. Great for multiple people or when you need more space. When using this style with an emergency tarp, it's best suited for a single user at times when core temperature control are most needed. The smaller space inside will be easier to warm while still providing good coverage from the elements.



The *Fly* is the preferred set up for hammock camping or for creating a large covered work-space. It provides a good sunshade and ample headroom, it keeps the rain at bay. This is a good set up in hot climates because it provides good ventilation and adequate coverage from the sun.



The *Super Shelter* was invented by Mors Kochanski, a Canadian wilderness expert and prolific author. The idea Mors used was based on the concepts of what a shelter should provide to a person in the cold environment of the boreal forest. He inserted plastic in front of a shelter to serve as a conductor of point radiation from a fire. This light would refract, thereby trapping and heating the air within the shelter enabling the user to not only stay warm, but dry their clothes.

The super shelter is fire dependent. Without a continual fire heat will not be held within the

shelter. There are several ways to build this shelter, but for the purposes of Modern Survival, by draping plastic over our standard emergency space blankets, we can achieve the same effects. With proper ground insulation and plastic coverage over a lean-to or plow point tarp shelter, one can easily reach interior shelter temperatures of 80° F or more, so long as the fire is tended to.

## **Sleep and Rest While Afield**

*The quality of a survival kit is determined by how much it can help you when you need to sleep. If you can sleep well at night, you have it made.” ~ Mors Kochanski*

### ***Gear***

The right gear certainly makes a difference. We've already mentioned insulation layers, these are important in all sleep situations, including hammocks. The only time you would want to omit that would be at the hottest time of the year. The clothing you wear is important and will always serve as your first cover element when it comes to survival. Loose and layered to trap or release heat is always important. The blanket vs sleeping bag dilemma usually comes next.

The fact is that a queen size high quality wool blanket, like a 6 point Hudson's Bay Blanket, will permit you to sleep comfortably down to about 40 degrees. After that, you need more ground insulation, bigger fires or coal beds to make them work. But they can and do work below freezing. Sleeping bags are the way to go otherwise. Whatever your predicament in a

survival scenario, think outside the box. Use trash to insulate your body to mimic the effects of quality gear.

### *Sleep Cycles*

A quality nights rest in the woods takes time. It would not be uncommon to go as long as 36 hours of little or no sleep in a true emergency. Regardless of the reason your afield you'll often find the first night is often the one you find yourself the most restless. This is because you're still set on your home sleep pattern assuming you're not completely exhausted. By your second night, you settle in better and begin moving back toward a normal biphasic sleep cycle. This may be new to you, but historically people slept in two phases through the night. One lasting about 4 hours when they would then wake for 1-3 hours and do things like read, snack, have sex or even chop wood!

Then, they would sleep again 3-4 more hours until dawn. It was called first sleep and second sleep in pre-industrialized Europe. There's a book on the subject called "At Day's Close: Night in Times Past" by Roger Ekirch if you're interested in the history of night time escapades. Nessmuk also references biphasic sleeping in his

book *Woodcraft* in Chapter 3 on the Indian Camp.

*"Ten o'clock comes. The time has not passed tediously. You are warm, dry and well-fed. Your old friends, the owls, come near the fire-light and salute you with their strange wild notes; a distant fox sets up for himself with his odd, barking cry and you turn in. Not ready to sleep just yet. But you drop off; and it is two bells in the morning watch when you waken with a sense of chill and darkness. The fire has burned low and snow is falling. The owls have left and a deep silence broods over the cold, still forest. You rouse the fire and, as the bright light shines to the furthest recesses of your forest den, get out the little pipe and reduce a bit of navy plug to its lowest denomination. The smoke curls lazily upward; the fire makes you warm and drowsy and again you lie down—to again awaken with a sense of chilliness—to find the fire burned low and daylight breaking. You have slept better than you would in your own room at home. You have slept in an "Indian camp."*

It's normal to wake in the night in the woods, (usually to pee). Speaking of which, never fight off the urge in the night to get up and pee, as

doing so makes you colder as the blood in your body pumps around the bladder in an attempt to keep the water warm. This means your extremities get a lighter blood flow, which makes you cold. So get up and go. Stoke the fire. Eat a snack. Go back to bed.

Generally the first thing you hear around the morning camp fire is the question- "How did you sleep?" An answer other than good in the old days was often a sign of poor woodsmanship.

Proper insulation, good gear, and an understanding that it's okay to wake up at 2-3 am for a while- is all you really need to know to start getting a better night's rest in the wilds.

## **Fear of the Unknown**

*I will make a covenant of peace with my people and drive away the dangerous animals from the land. Then they will be able to camp safely in the wildest places and sleep in the woods without fear. ~ Ezekiel 34:25*

If you've never slept under a tarp shelter before, especially down on the ground and outside of a hammock, it's understandable to be a bit jumpy at anything that makes a sound in the dark. The animals are almost always more afraid of you than you are of them. They may be curious and sniff about, but unless you are in wolf, bear or cougar country, you often have nothing to worry about. Make sure you keep food outside of and away from your main camp if you are in predator country and keep a fire going overnight and that will keep the beasts at bay.

In my forty years of camping experiences, the longest period of time I stayed in an unimproved tarp shelter was two weeks. While I certainly seen a lot of wildlife and weathered some storms, my only animal experience I'll share with you here. It was mid November and we had been running a trap line. I was with a group and

my camp was nestled away from the others as I was just sleeping under a tarp with no fire. I had a nice sleeping bag, so I was plenty comfortable. In the middle of the night, I had an odd dream about my oldest son. He had passed away and for some reason, the funeral parlor put him on a conveyor belt heading up into a cremation furnace. As I was watching him roll along, I saw him twitch, which made me run to him and begin to squeeze him with hugs and shake him to wake him up. Suddenly a loud burst of air with a hiss came from under his arm which startled me and woke me. As my eyes opened I realized the hissing was still going on as I had been squeezing a possum under my arm in my sleeping bag! As I let go, it scurried off into the dark as I laughed myself back to sleep.

If you find yourself in a covenant relationship with God through Jesus Christ. You have a promise of peace and protection whilst camping in the woods. Rest in that knowledge and you'll be able to overcome anything.



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