NATURE ALIVE ADVENTURES



BASIC SURVIVAL TRAINING BOOKLET

Are you equipped to survive?

They started the fire within me…

The information in this booklet that I can truly claim for myself is a small amount of the total work. I feel that it would be pointless for me to compose a survival booklet and set of courses and claim that it is of my own creation. Instead I wish to place credit where credit is due and allow it to be known that this booklet has been derived partly from my own information, and to a great deal from the work of other excellent survival instructors such as Tom Brown Jr., Allan Fry, William Keller, Laurence Gonzales, and especially Mors Kochanski. It is these people whom I credit with creating the fire within me that has become an raging inferno that consumes survival knowledge and experience to all ends.

Along these lines, it deserves mention here that the majority of the information contained within comes from a master woodsman of great reputation whom I feel deserves the highest respect within the realm of survival skills — Mors Kochanski.

Anyone who has taken a course from Mors will agree that he is the undisputed champion of modern survival instructors. A good friend of mine once told me of a question he asked of Mors while attending one of Mors's workshops: "How did you come to know so much about survival?" to which Mors replied something to the effect of; "take any single survival skill, like fire for example, and begin reading every book you can find on that subject until you have exhausted all new information about it. Then go out and practice what you have learned until you have mastered it. Soon you will know what works and what does not!" It's this kind of dedication combined with a career of more than 30 years that has enabled Mors to boil down and streamline modern survival into an efficient and useful set of skills and knowledge.

My major contributions in this booklet and the accompanying course, will be found in between the lines where my own passion for survival skills and considerable experience comes forth as you hear my stories, see my photos, and see the enjoyment that I derive from survival skills. It will likely become apparent that I have paid my dues and put the information in the booklet to the test through my own experience. However, when one takes a close look at the text, charts, diagrams, and content in this booklet, it may become obvious that I have intentionally taken the written work of others before me and adapted it to this booklet. This is because I do not claim to be the person credited with developing the concepts contained herein. I only lay claim to consolidating what other master woodsmen have discovered through years of survival experience and placing it into this form with the ultimate goal of passing on the information as it was passed on to me.

Dale Kiselyk 2007

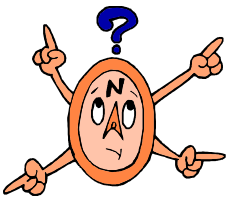
ARE YOU A SURVIVOR?

(adapted from Keller's Outdoor Survival Guide)

Is Survival Training really necessary in this modern age? The answer is YES!
In order to determine your knowledge of basic survival skills, answer the following questions about how you would handle yourself in a remote wilderness setting:

If you became lost or stranded, what would you do?
What would you do if you became separated from all you equipment?
If you were driving your car and the engine quit on a remote road, it was cold and the heater no longer worked, what would you do?
If you were lost, getting thirsty, and did not have any drinking water, would you know how to find a safe drink of water?
Can you build a shelter to protect yourself from the elements?
Can you build a fire?
Can you build a fire in windy or wet conditions?
Can you build a fire when your hands are cold and numb—so numb that you cannot hold a match or lighter?
Do you know how to dry your clothing after a rain or if you have fallen into a stream, or filled your clothes with moisture from your sweating body?
Would you recognize the symptoms of hypothermia in yourself or someone else before it was too late?
Do you know how to warm yourself or a companion who is in a condition of hypothermia without causing further dangers such as cardiac arrest?
Do you know what you can and cannot eat in the wild?
Do you know how to dress yourself for the conditions you will be exposed to? Will those clothes work if the conditions change?
If you had a new GPS guidance system or cell phone, what would you do if the batteries died or it was damaged and no longer worked?
Do you have the ability to use a map and compass? Do you have a map and compass?
Can you determine direction by the stars?

WILDERNESS SURVIVAL CONSIDERATIONS



The term "SURVIVAL" may be used for situations where life expectancy is reduced to a specified time limit which may also state when irreversible conditions are to be expected and rescue is necessary.

If you manage to get out on your own, the situation may be termed an emergency or only a great inconvenience.

Basic Survival Knowledge is what allows one to deal with potentially lethal stresses in an unfamiliar environment (usually disregarding everything, especially the environment in the interest of maintaining life at all costs).

1. **Basic Survival (stranded 1-4 days):** Make prior arrangements so that rescuers know when and where to look for you when you are overdue. When in trouble, wait for rescue. There is no need to live off the land. One should know the most basic skills to survive: (a) in the cold when there is no snow (b) in the cold when there is snow so deep that snowshoes are needed to travel (c) in the summer with its insects, bears and river crossings and (d) know how to use a basic survival kit. This includes knowledge of:

   Proper Clothing Sleeping Bag Bush Bed Adequate Sleep Fire Uses
   Knife Skills Saw Craft Axe Craft Signals: Mirror, Smoke, Sound
   First Aid Map & Compass Survival Psychology
   Fasting/Food Coping with Heat & Cold
   Clean Water Pot-Boiling/Filtering, Carrying, Scooping
   Rope, String, Cord, Binding Means to pack and carry
   Training time about one week

2. **Intermediate Survival (stranded 5-40 days):** Where there is the potential of a long waiting period to be rescued and living off the land may be required and the appropriate gear such as firearms and fishing tackle may be carried. This includes knowledge of Basic Survival (see #1) and the following additional skills:

   Hunting & Tracking Trapping Edible Plants Advanced Shelters
   Cooking Methods Travel by foot, snowshoe, sled, travois, etc
   Navigation Sanitation and cleanliness. Food Preparation
   Training time about 4 weeks

3. **Advanced Survival (stranded beyond 40 days):** Advanced skills make one independent of any modern technological aids. Includes above skills plus the following:

   Advanced Woodcraft Tools of Stone & Bone Tanning Hides and more
   Training time likely over 40 weeks

4. **Beyond Advanced Survival (stranded indefinitely):** The skills for coping with any wilderness survival stresses are great enough to get by indefinitely. Includes:

   Familiarity of up to 1000 plants Deep knowledge of over 20 animals
   Permanent Shelters Primitive Tools Body Needs
   Use of Minerals Change of Seasons Food Preservation
   Adopts a Hunter Gatherer Lifestyle

Mors Kochanski

SURVIVAL IN THE BOREAL FOREST

(Derived from the writings of M. Kochanski)

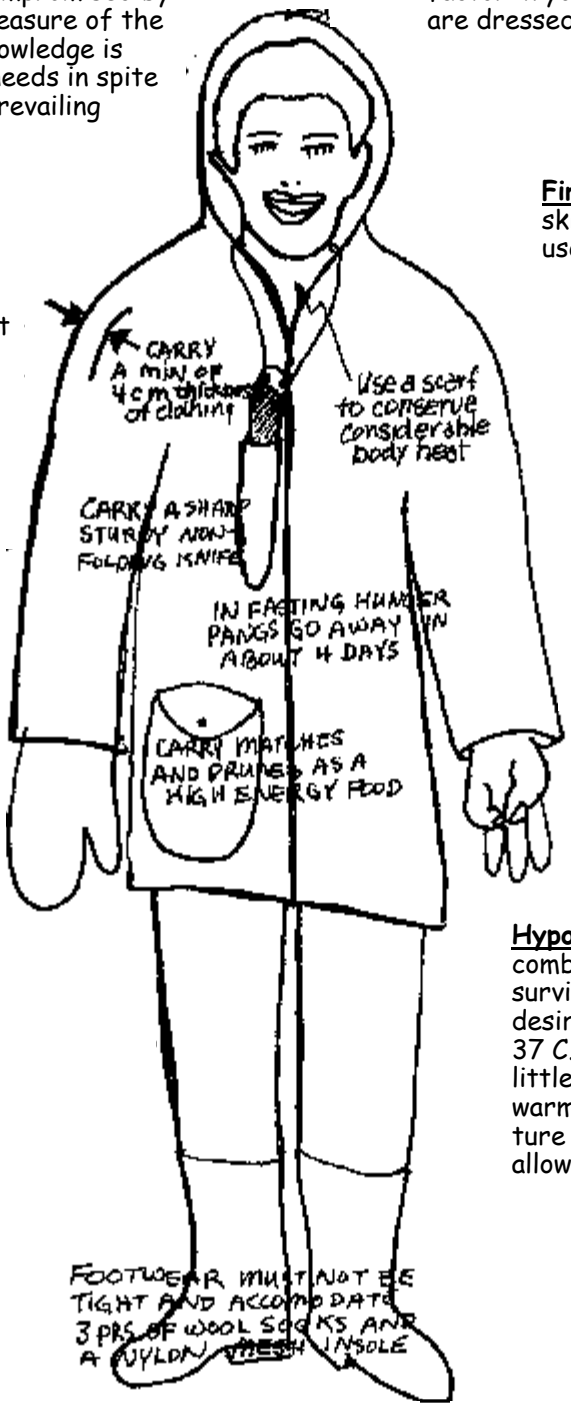
When potentially lethal stresses are experienced by the human body, deaths will eventually result if these stresses are not relieved. Survival knowledge allows one to avoid or deal with these stresses through preparation and appropriate action.

Sleep: How long can you go without sleep before survival is compromised by sleep deprivation? The measure of the quality of your survival knowledge is how you meet your sleep needs in spite of the harshness of the prevailing conditions

Clothing: The single most important factor in your survival is how well you are dressed.

Fire: The second most important skill is your ability to make and use fire to stay warm.

Water: You may do without water for about **4 days**. With adequate sleep and water intake you can live until you starve to death.



Knowledge: The more you know, the less you have to carry to make up for your lack of knowledge with equipment.

Food: You can fast for at least 40 days and longer. You will survive longer by fasting rather than foraging if (1) you can not find 1000 calories on a daily basis, (2) if you cannot find 500gms of Carbohydrate daily, and (3) if you use more energy in obtaining your food than you get back in eating it.

Knife: A well trained person needs only a knife to survive.

Hypothermia: Cold, wet, and wind can combine to rapidly cool the body. To survive one must keep the body at its desirable temperature of 98.7 F or 37 C. If you can not touch thumb to little finger as shown, take steps to warm up as further drop in temperature may begin to numb your mind and allow hypothermia to set in.

SURVIVAL PRIORITIES

Survival priorities can be determined by listing what it takes for a human being to stay alive for an indefinite period of time. This booklet introduces each of the following survival priorities:

1. Injury Treatment & Prevention
2. Positive Mental Attitude
3. Clothing
4. Shelter
5. Fire
6. Water Requirements
7. Getting Enough Sleep
8. Signals
9. Food
10. Survival Kits

The above list is not in a specific order of occurrence in survival situations. The order you deal with the Survival Priorities is directly related to the specific situation you are in.

Seven Enemies that Threaten your Life

1. Pain and Injury
2. Boredom and Loneliness
3. Cold and Heat
4. Thirst
5. Fear and Anxiety
6. Fatigue
7. Hunger

**What tools and knowledge do you have to defeat the above conditions?

1. INJURY TREATMENT & PREVENTION:

If you find yourself in a survival situation and there are no injuries, then you can focus on other survival priorities. If, however, an injury should occur, it will immediately become the top priority and demand all your attention until the injury is addressed and stabilized.

First Aid Kit: Know how to use everything in your first aid kit beforehand and inspect and refill contents before each trip.

A Personal First Aid Kit for a short 1-2 day hike may contain the following:



6 Curity Telfa Pads—10X7.5 cms	12 good quality knuckle dressings
1 tube Ophthalmic ointment	1 pkg steri-strips/butterfly closures
1 small mirror	1 good tweezers, sharp pointed
2 sewing needles, medium size	3 m dental floss

On long term trips it may be wise to carry a few extra items such as:

extra gauze	extra knuckle dressings	extra steri-strips
tensor bandages	2 triangular bandages	adhesive tape
safety pins	1000mg Vitamin C	400 mg Vitamin E
antihistamine	25 pain killers	antiseptic towellets
sunscreen	sunglasses	nail clippers

Disclaimer: The information in this booklet and the course it applies to is not intended to be a comprehensive medical guide. For people who travel and work in the backcountry it is suggested that you enroll in a Wilderness First Aid Course for adequate training.

Common Outdoor Injuries: The following chart identifies most of the common medical emergencies that people face in a survival situation.

Medical Condition	Symptom	Treatment
Bleeding & Wounds	External: Pale, cool clammy skin, fast heart rate, low BP, Unconsciousness Internal: Dizziness, fainting, rapid heartbeat, weak pulse, thirst, vomiting blood, blood in feces/urine, pain	External: Immediate direct pressure, elevate wound above heart. Internal: Treat for shock, evacuation to medical care if possible.
Shock	Weakness, fainting, cold clammy pale skin, rapid & weak pulse, torpor, thirst, nausea.	No unnecessary movement, no smoking, eating, or drinking, treat injuries, prone position & raise legs, loosen clothing, keep warm, record breathing, pulse, & response.
Burns	1st Degree = red skin, local pain, e.g. sunburn. 2nd Degree = blisters, pronounced swelling, painful, skin peels. 3rd Degree = white/black charred skin, loss of pain.	1st or 2nd Degree Burns: soak in cool water, clean gently, apply antibiotic ointment/burn cream, clean dressings. 3rd Degree: don't remove stuck clothing, don't soak in water or apply cream, cover with sterile dressings, treat for shock, get medical help.
Heat Exhaustion	Dehydrated, nauseous, faintness, weak rapid pulse, cold clammy skin.	Plenty of rest, liquid and salt tablets, or sport drink.
Heatstroke	Overheated, flushed, hot face, rapid pulse, headache, no sweating.	Resting in cool area, applying & consuming cold liquid, wear headgear.
Frostnip	Nonfreezing skin tissues, numbness, tingling but no tissue injury.	Re-warm the injured area.
Frostbite	Body tissues are frozen, usually not painful, loss of sensation, feel cold, solid & wood-like, pale, blue tinged, and waxy, may form clear blisters.	Don't warm until in warm environment-preferably hospital, no rubbing or manipulating frostbitten area, treat person as hypothermic.
Fractures & Dislocations	Pain & tenderness, swelling, deformity, difficulty using or moving injured area, non weight bearing, grating sound, numbness below injury.	Control bleeding, apply cold pack, administer pain relief medication, flush open wounds, apply clean dressing, splint to immobilize, (use slings, sticks, packs, ropes, etc), treat for shock.

Hypothermia—is the lowering of body CORE temperature below 37.5°C

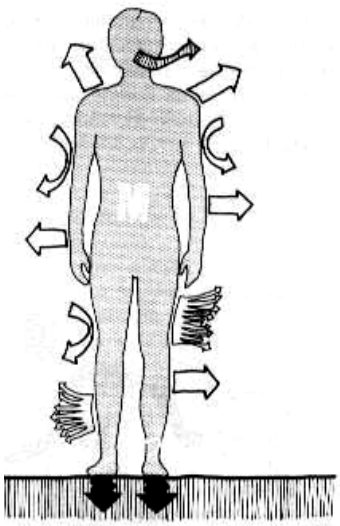
Body Temperature & Patient Symptoms	
37.5°C Normal	
36°C Feels Cold 35°C Shivering	Seek dry shelter, replace wet clothing with dry. Insulate whole body including HEAD. Exercise but avoid sweating. External warmth (bath, fire) ONLY if CORE TEMP above 35°C. Warm, sweet drinks & food (high calories).
34°C Clumsy, Irrational, Confused (appears Drunk) 33°C Muscle Stiffness	NO EXERCISE., HANDLE GENTLY. REST. NO EXTERNAL WARMTH (except to chest, trunk-warm slowly to prevent cold blood from racing to heart). Warm drinks or warm/moist Oxygen. Monitor pulse, breathing. Restrict movement. Elevate feet slightly.
32°C Shivering Stops. Collapse	Transfer to Hospital if Possible. Life threatening at this time
31°C Semi Conscious 30°C Unconscious No Response to Painful Stimuli 29°C Slow Pulse/Breathing 28°C Cardiac Arrest No obvious pulse or breathing.	Nothing by mouth. Check that airway remains open. May tolerate plastic airway. Put in recovery position. Check airway, turn every 2 hours to protect skin. Monitor Pulse and Breathing. Slow mouth to mouth breathing at victim's own rate (may be very slow) CPR
Below 28°C No Vital Signs Cold to touch.	Do not give up treatment. NOTE: NOT DEAD UNTIL WARM AND DEAD Core temperature may lag behind skin temperature & continue to drop so keep monitoring



Prevention: Stay Dry, remove any wet clothes. Wear insulative head gear & clothes. Be proactive to keep warm & dry before cold sets in (fire, shelter, more clothes).

Cold Injuries: In survival, it is important to understand that the human body looses heat in five ways:

1. Conduction: Heat transfer from you to another object.
2. Radiation: Heat loss into space. Up to 70% of your body heat is lost in the head & neck area. Wear a warm hat or hood.
3. Respiration: Cold air goes in to the lungs and warm air and moisture goes out. This equates to heat loss.





4. Convection: Air movement (wind) pulls heat away from you. In winter, wind is a serious threat to heat loss.
5. Perspiration: Avoid wet and sweat at all costs. Wet skin conducts heat away from the body 25 times faster than dry skin.

2. MENTAL ATTITUDE:

"Many who do not survive are dead within 40 hrs. from panic induced exhaustion even in fine weather. Driven by a feeling that the bush is out to get them, their minds push their bodies beyond their physical limits with a frenzied, senseless expenditure of energy. It is best to remember that the bush is neutral—neither for or against you. What it does for you depends on what you know of how to make the available resources work for you. With the sudden onsets of the various stresses of survival, some people may go into a form of deep depression that causes some people to virtually commit suicide—through a form of hopeless apathy. This condition can go away on its own in about 3-4 days. Rest, stay in one place, keep warm until help arrives."

Mors Kochanski



In a difficult survival situation many people quickly panic and become irrational. Try to remember to **Stop**, **Think**, **Observe**, and **Plan** and you will find that you can regain composure.

S.T.O.P

A well accepted acronym for dealing with emergency response and survival is STOP!

S = STOP: Sit down, gather your thoughts together, and gain perspective. Stopping helps fight anxiety/panic and it helps you to recognize that you need to accept that you are in a serious survival situation.

T = THINK: Think about what you have to do to help yourself. Analyze the weather, terrain, available energy, and resources to sustain life. Don't panic! Panic is you enemy and will only cause you to make rash, potentially life-threatening decisions.

O = OBSERVE: Size up the situation and ask questions about the landscape: What resources do you have? How long until darkness? Will rescuers be coming? Is this a good place to spend the night? Etc.

P = PLAN: Form a course of action. Tackle each task one at a time. Build a fire, shelter, or signal fire. Get to work. The trick is to become extremely stingy with your scarce resources, balance risk and reward, investing only in efforts that offer the biggest return.

Deep Survival

In his excellent book Deep Survival, Laurence Gonzales points out that there seems to be "12 Rules of Survival" that the most successful survivors consistently display.

The list below has been adapted from an article written by Laurence Gonzales about Deep Survival.

"...to my surprise, I found an eerie uniformity in the way people survive seemingly impossible circumstances. The most successful survivors-those who practice what I call "deep survival" go through the same patterns of thought and behavior, the same transformation and spiritual discovery, in the course of keeping themselves alive."

Laurence Gonzales

1. **Perceive And Believe**

   Don't fall into the deadly trap of denial or of immobilizing fear. Admit it; You're really in trouble and you're going to have to get yourself out.

2. **Stay Calm—Use Your Anger**

   In the initial crisis, survivors are not ruled by fear; instead, they make use of it. Their fear often feels like (and turns into) anger, which motivates them and makes them feel sharper.

3. **Think, Analyze, and Plan**

   Survivors quickly organize, set up routines, and institute discipline.

4. **Take Correct, Decisive Action**

   Survivors are willing to take risks to save themselves and others. But they are simultaneously bold and cautious in what they will do.

5. **Celebrate Your Success**

   Survivors take great joy from even their smallest successes. This helps keep motivation high and prevents a lethal plunge into hopelessness. It also provides relief from the unspeakable strain of a life-threatening situation.

6. **Be A Rescuer, Not A Victim**

   Survivors are always doing what they do for someone else, even if that someone is thousands of miles away.

7. **Enjoy The Survival Journey**

   It may seem counterintuitive, but even in the worst circumstances, survivors find something to enjoy, some way to play and laugh. Survival can be tedious, and waiting itself is an art.

8. **See The Beauty**

   Survivors are attuned to the wonder of their world, especially in the face of mortal danger. The appreciation of beauty, the feeling of awe, open the senses to the environment.

9. Believe That You Will Succeed

It is at this point, following what I call "the vision", that the survivor's will to live becomes firmly fixed. Fear of dying falls away, and a new strength fills them with the power to go on.

10. Surrender

Yes you might die. In fact, you will die—we all do. But perhaps it doesn't have to be today. Don't let it worry you. Forget about rescue. Everything you need is inside you already.

11. Do whatever Is Necessary

Survivors have a reason to live and are willing to bet everything on themselves. They have what psychologists call meta-knowledge: They know their abilities and do not over or underestimate them. They believe that anything is possible and act accordingly.

12. Never Give Up

Survivors are not easily discouraged by setbacks. They accept that the environment is constantly changing and know that they must adapt. When they fall, they pick themselves up and start the entire process over again, breaking it down into manageable bits.

Laurence Gonzales



If you are quick to push the PANIC button, things are likely going to get worse in a hurry!

The bush in neutral. It is neither for or against you. The bush is not out to help or harm you. Your welfare depends on what you know and what you can do for yourself. You will only get out of the situation what you are able to put into it.

Your greatest success depends on a calm and collected attitude backed up by the resolve to do the best you can under the circumstances. If you are unable to develop a positive attitude about your ordeal, things are likely to become much more difficult to cope with. Cursing and striking out at inanimate objects is both mentally and physically exhausting. If you have taken the time to gain the proper knowledge and experience in wilderness survival you should have the confidence to cope with staying in the bush alone a few nights.

Mors Kochanski

3. CLOTHING

The Function of Clothing:

1. To insulate against cold.
2. To protect from wind.
3. To wick perspiration from skin to prevent chilling.
4. To be vapor permeable enough to pass body moisture out to the air while maintaining optimal insulation.
5. To prevent rain from soaking your insulation and the skin.
6. To protect the body from the sun's UV rays.
7. To protect the body from dirt.
8. To protect the body from scratches and gashes.
9. Clothes should dry readily, preferably by body heat alone.

Will the clothing you are wearing allow you to survive 4 days without a fire in any season?

Temperature and Thickness of Clothes

The effectiveness of clothing depends on the thickness of the air layer trapped against the skin. Good insulative materials are those that have from one tenth to one fifth fibrous materials with the rest being entrapped air. The entrapment cells have to be small enough (no larger than 3/8") so that the air in them cannot circulate or the insulative effectiveness will be diminished.

The following chart, based on studies conducted by the U.S. Army Corps of Engineers, translates temperature and thickness of insulation for various outdoor activities.

Temperature (Deg. Celsius)	Sleeping (cms)	Light Work (cms)	Heavy Work (cms)
15	2.5	1.25	0.20
10	3.25	1.50	0.30
5	4.00	1.75	0.40
0	4.50	2.00	0.50
-5	5.00	2.50	0.50
-10	5.50	2.75	0.70
-20	6.75	3.50	0.90
-30	7.75	4.25	1.10
-40	9.00	5.00	1.30
-45	9.50	5.25	1.40

The Best way to Dress is in Layers

Layering: Dressing in layers instead of wearing one bulky garment can help prevent uncomfortable and potentially dangerous situations. Layering is a simple procedure that allows a person to adjust to a wide variety of environmental conditions. The still air around the body is like a micro-climate. This micro climate can easily change due to physical activity, wind temperature and moisture. Wearing a series of thin layers allows a person to fine tune the micro-climate by shedding layers before the body gets too hot and adding layers before it gets too cold. By combining different fabrics over several layers, a comfortable body temperature can be maintained without excessive sweating which can lead to heat loss.

The Inuit have a saying:
"You Sweat, You Die"

1. **Inner Wicking Layer:** This underwear layer keeps the skin dry. The best fabric to wear is a hydrophobic synthetic fabric such as polyester or polypropylene, or a natural fabric such as the "newly developed" merino wool underwear. It must effectively move perspiration away from the skin and transport moisture into the outer insulation layers.
2. **First Insulation layer:** This layer gives some insulation and protection from the elements, and should continue to transport the moisture from the inner layer. Clothing such as a zip-front turtleneck or button shirt (made from middle weight polypropylene, lightweight wool, or fleece) that allows for good ventilation. Fleece or wool pants may be added to protect the legs.
3. **Second Insulation Layer:** Similar to first insulation layer but of medium thickness.
4. **Third Insulation Layer:** A good thick wool or fleece sweater or vest. Insulation layers 1-3 should have a combined thickness of up to 3 cm.
5. **Shell Layer:** The shell protects the micro-climate from the elements. The shell is an outer jacket and pants layer that blocks the wind, rain and snow. A windbreaker shell minimizes heat loss and keeps the air trapped by the layers underneath. A waterproof shell that is not breathable also traps the moisture from perspiration. If so, the shell should have armpit and full front zippers. The best shell should be waterproof and breathable so it can provide protection from wind and water and not encourage perspiration.
6. **Head Layer:** A hat will provide protection from the sun and rain and reduces heat loss. Up to 70 percent of the body's heat can be lost through radiation and convection from the head in cold weather. Because the head has no fat for insulation, the head acts like a radiator, letting heat escape. A hat conserves heat and allows the body to send more blood to the extremities (hands, legs, feet). A good wool or fleece hat will slow heat loss; in harsh conditions wear full-faced balaclavas, neck gaiters, scarf, or hood. In hot weather; a wide-brimmed hat will protect the body in downpours and protect from the sun and helps to prevent overheating.

7. **Hand Layers:** A layering system with a thin layer wool or synthetic glove for moisture transport and an insulating wool or fleece mitten and a non-insulating shell mitten for outer protection will cover a wide range of temperature control and still offer manual dexterity. Mittens are better than gloves because they have a greater surface area for radiating heat between the fingers.
8. **Feet Layers:** Wear two to three pairs of socks inside boots. A lightweight liner sock helps to pass moisture away from the foot. The second and third layers should be medium to lightweight wool or wool blend. Wearing more than one layer of socks allows the socks to slide against each other instead of against the skin. Cotton socks are not recommended because they will absorb and retain moisture from the feet.

Water is the single greatest threat to personal comfort. Rain and snow are not the only water sources. The human body produces moisture in the form of perspiration. At rest, a body gives off about 57 ml of water vapor every hour. Heavy exertion causes a body to give off up to one liter in sweat over the same period. Water conducts heat away from the body more that 30 times faster than air. A person outdoors must, therefore, manage the body's moisture effectively and get it away from the body as quickly as possible. The water vapor must get from the inside of clothes to the outside.

Mors Kochanski

Four major questions to ask when choosing your clothing before going outdoors:

1. Does the clothing provide protection against hazards (mosquitoes, filth, sunburn, rain, etc.) and will it retain body heat through the night if you are forced to spend the night outside?
2. Does the clothing system allow the continuous escape of body moisture?
3. Does the clothing allow for adjustments to remain comfortably cool when active and comfortably warm when inactive throughout the day and night?
4. Is the clothing comfortable and loose enough that it will allow you to work or play without being too restrictive or bulky?

Type of Fabric	Pros	Cons
Polypropylene **base layer**	Absorb less than 1/2% of it's weight in H20, wicks well, fast drying, handles frequent washing.	Absorbs body odor quickly & needs to be laundered often.
Wool **base, insulation, and often outer layer**	80% loft when wet, 80% warmth retained when wet, has a skin cleansing effect, resists body odor, less washing, fabric absorbs 30% moisture then transports excess away from body, rain & snow resistant, multi layer, fire resistant.	Heavy when wet, older fabrics smell when wet (newer blends do not), slow to dry, can be itchy, some wool requires special washing methods
Fleece/Pile **base, insulation, and often outer layer**	Dries quickly, wicks moisture, some insulative value when wet, absorbs less than 1/2% weight in H2O, long lasting, very washable, comfortable.	Poor in wind, melts near fire, poor insulation when wet
Cotton **base, and sometimes outer shell layer in cold weather**	Excellent in Hot weather, some blends make suitable shell cloth for cold weather.	Doesn't wick moisture, poor base layer & insulation layer in cold weather, readily absorbs water, when wet it dries slowly from outside in, looses insulative value when wet, wicks along fabric & spreads moisture, often called death cloth.
Down Filled Clothing **usually outermost layer as a jacket or pant**	Best weight to loft ratio and thusly the warmest insulation, highly compressible.	Degenerates in time, useless when wet, hard to dry in outdoors, expensive, dangerous around fires, too hot when active-creating excess moisture.
Waterproof Breathable * **mostly as a shell layer**	Allows water vapor from body to pass through shell but prevents water droplets from entering into clothing (in Theory).	Must follow Manufacturers Directions and keep very clean, much of the body vapor will not pass through shell when very active.
Rain Jacket and Pants **shell layer**	Blocks all outside moisture and wind from entering clothing	Does not allow for body moisture to escape. Look for good ventilation in rain gear design

Gore Tex and Other Waterproof Breathables

***** A simple test for a Waterproof Breathable garment is to place it against your mouth and try to suck and blow through it. This will give you a good idea just how much vapor will truly pass through the material. Keep in mind that body moisture trapped in your clothing has no pressure system to force the vapor through the shell and so "Waterproof Breathable" fabrics must be quite porous and loosely woven to actually breathe.

****** It is important to recognize that clothing manufacturers have come up with incredible developments in the last 10 years and that there have been many fascinating 'new fabric' additions to the industry. However, one must always examine manufacturer claims very closely by testing the clothing and coming up with your own conclusions as to the limits of the item.

4. SHELTER

- Do not believe that you can do without shelter in the wilderness. Shelters protect you from the cold, rain, wind, heat, sun, wild animals, insects, and snow.
- Good shelters create a feeling of well-being and protect the body from temperature, weather, or any other life-threatening force.
- Depending on the season and weather conditions, a shelter may or may not have a heat source.

What Makes A Good Shelter?

- Provides protection from weather
- Provides protection from hazards
- Stay away from low areas
- Southern Exposure
- Build it in a fire safe place
- Find a place with plenty of materials



There are Four types of Shelters that you can build in the bush:

1. Natural Shelters - you find them already completed on the landscape.
2. Shelters Built From Scratch - you build it from scratch with local materials.
3. Synthetic Shelters - you bring it with you from home.
4. Or a combination of all three

1. Natural Shelters:

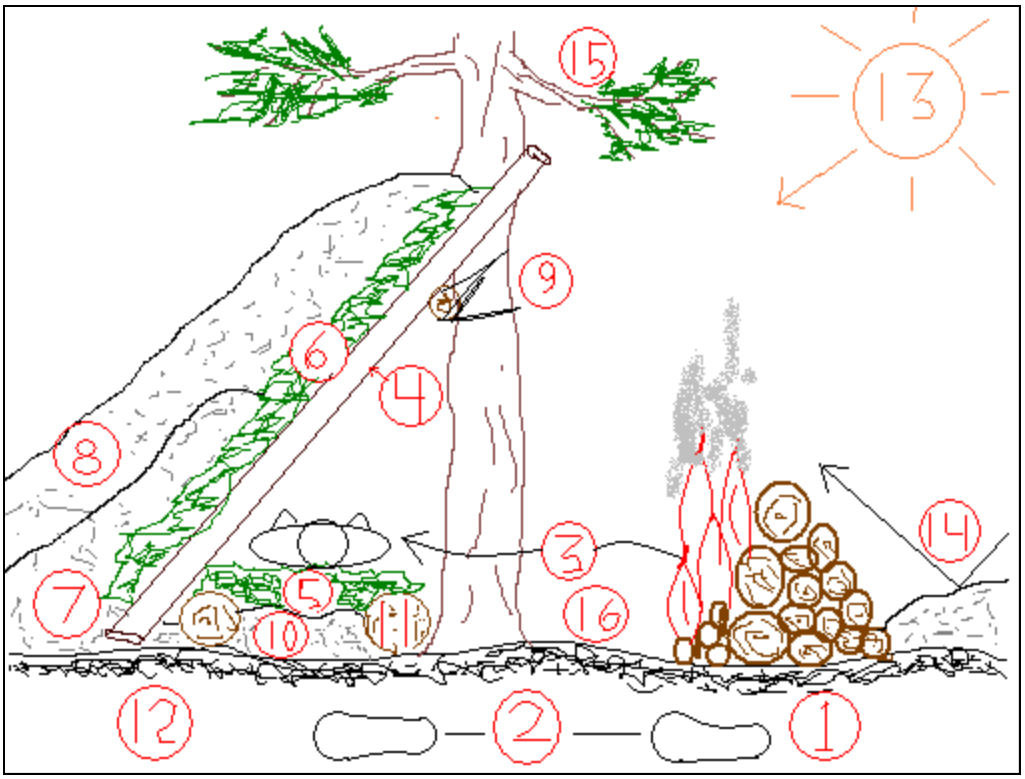
- Every Ecosystem has its particular type of natural shelter.
- They can be found anywhere but require time to discover.
- They may require a few additions to make them useable.
- Examples are: caves, stumps, fallen trees, dens, holes, snow banks, etc..

A good shelter in a bad location is a bad shelter!

2. Shelters Built From Scratch:

- There are a huge variety of shelters one can build in any Ecosystem.
- Examples are: lean-to, wicki-up, Hogan, debris hut, bark tepee, earth lodge, A-Frame, thatched, sod, survival cement, igloo, quinze, snow trench, etc..

"The most universally useful shelter is the **open lean-to with a fire** in front of it. It must block any movement of air on the three sides away from the fire, and it must be close enough to interrupt at least some of the radiant energy from the fire to create a warmed micro environment." Mors Kochanski



Cross Section of a Winter Lean—to (Matchegin)

1. Wall Backed fire is waist high with logs an arm span long.
2. Fire one good step away from the edge of the bed.
3. Fire made hot enough to force you to stay one step away.
4. The back of the shelter is as close to the fire as possible.
5. The bough bed is at least four fingers thick when compressed.
6. Boughs thick enough to prevent heat penetration from melting the banked up snow.
7. Snow is banked up to prevent infiltration of cold air.
8. If possible, bank up the whole roof with snow.
9. The ridgepole is substantial enough to hold up the weight of the bough and snow cover. The ridgepole is parallel to the wind. It is about shoulder height off the ground providing room to sit and work under the shelter roof.
10. The core of the bed can be made of snow or as an elevated bed without snow underneath it. It is about chair seat high.
11. Snow retaining log prevents the snow from melting out from under the bed.
12. With an elevated bed the ground can be uneven.
13. Face the shelter towards the sun.
14. A clear expanse of snow in front of the shelter provides more warming effect from the sun.
15. Make the shelter under a tree that provides some overhead protection.
16. The snow is cleared away between the fire and edge of the bed.

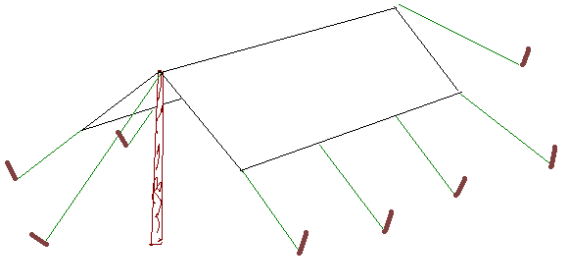
Mors Kochanski (adapted from original)

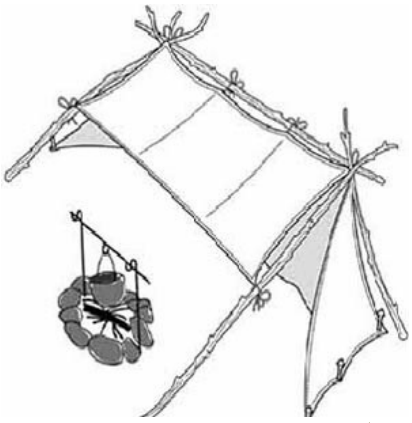
3. Synthetic Shelters:

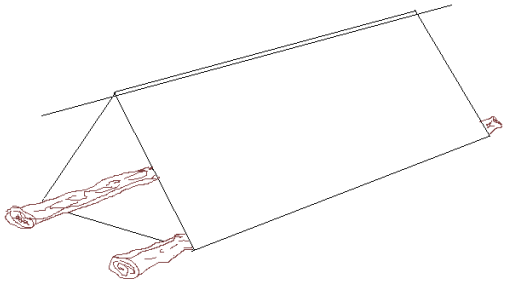
- Some synthetic shelters are complete on their own (tent) or they may require additional locally found materials (tarp incorporated into a lean-to).
- Examples: tent, teepee, tarp, plastic sheet, sleeping bag & matt, bivy bag, etc..
- There are many different configurations for synthetic shelters.



A good silicone or polyethylene tarp that contains sewn in grommets or web loops can be a tremendous help in shelter construction. Even better is a 4m x4m sheet of plastic and the training on constructing a super shelter.







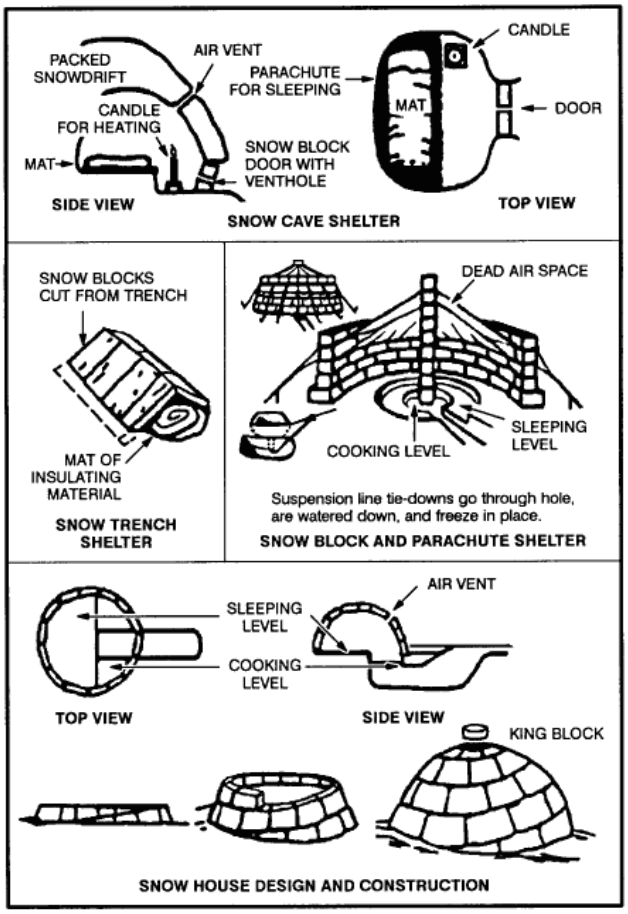


A good tarp is great for shelter building and they can also be useful for many other survival needs such as:

carrying/storing water	ground sheet	improvised rain gear
as a stretcher	to carry debris	as a signal
as a blanket	as rain gear	protection from insects

Snow Shelters:

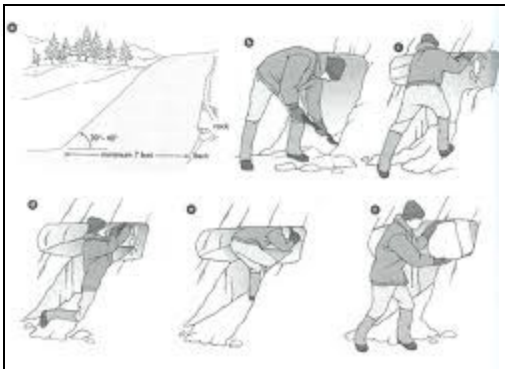
- Snow shelters may take a lot of energy to complete and they require substantial knowledge and training to build well.
- They are great shelters for bitter cold weather because they provide a warm and still interior area.
- Most snow shelters require a very low doorway and an elevated sleeping platform that allows occupants to sleep above the cold sink area and doorway.



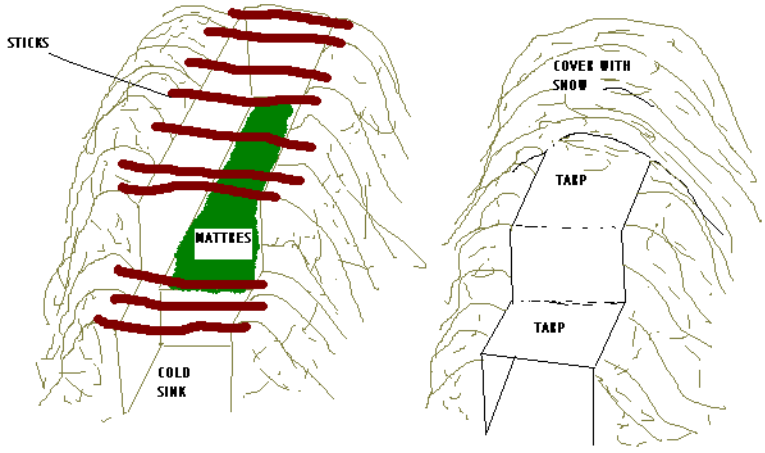


The Quinzee is a domed structure similar to an igloo but it is built by creating a large pile of snow and digging out the interior and plugging the door

The snow trench shelter is cut into a drift or a large pile of snow is built and left to harden for 1-2 hours. Sticks and a tarp or survival blanket are used to build the ceiling.



Deep snow drifts can become a wonderful shelter by burrowing into it.



Shelter Comparison Table: Assuming a theoretical survival simulation for 24 hours at –10C with snow in boreal forest. Also assume you have a pot and can boil & drink adequate water & are only in clothes without a sleeping bag.

Type of Shelter	Survival Kit Components on Hand	Knowledge Required	Energy Expenditure Gathering wood	Solid Sleep Gained	Size of Wood Collected	Size of Woodpile for 24 hours
Standard Campground Fire	Matches only	Basic fire starting skills (F.S.S)	Very high, exhaustion comes quickly	1.5 hours if you are lucky	Breakable by hand up to leg thickness	A pile about the size of a small car
Parallel Fire Lay and Bush Bed	Matches only	Basic F.S.S & knowledge of fire arrangement & bed const.	Still high, less time spent breaking fire wood	More comfortable but still short duration of 1-2 hours sleep	Body length logs, leg thick or as large as you can hall	Slightly smaller than above
Re-emitter wall backed fire and lean-to with elevated bed	Matches only	Basic F.S.S. Fire arrangements, bush bed, lean -to and re-emitter wall	Extra energy burned to build shelter but energy saved as fire heat more focussed at body	0.5-2 hrs of steady sleep	Body length logs, as large as you can carry	Same as above but more wood needed to build shelter—can burn shelter if necessary
Re-emitter fire, lean-to, elevated bed, plastic or tarp	Matches and Polyethylene sheet or tarp	Same as above plus proper arrangement of plastic sheet	Less work on shelter as poly is fast to build and impermeable	1.5-2.5 hrs of steady sleep	Same as above	Same as above—less wood needed for shelter building
Super Shelter: fabric, poly and reflective mylar blanket	Matches, poly, mylar, parachute or other fabric	Advanced shelter knowledge plus all of above	Some energy burned on shelter but **significantly less energy spent on fuel**	1.5-5hrs or even more hours of steady sleep	Same as above	**Half the wood fuel required. In many cases the shelter can be heated by sunshine alone.**
Snow Trench, Snow Cave, Quinzee, or Igloo with candle as heat source	Snow saw, shovel, mylar blanket, parachute or other fabric sometimes used	Advanced shelter knowledge plus much experience and adequate deep snow	Significant energy burned on shelter/ no energy burned collecting fuel. **Must have adequate insulation/clothes**	With adequate clothing or blankets you can sleep as long as you like	Very little or no wood fuel required at all, only for sitting fire	Maintain small sitting fire, no fire needed as part of the shelter construction.
Add a good Bow Saw or Axe	Matches, various shelter fabric, axe, bow saw	Advanced shelter knowledge plus all of above	**Drastic savings of energy in shelter building and collecting fuel**	3-5hrs steady sleep and possibly more	5-50cm thick logs or larger, able to fell large standing dead trees	**1/4 wood fuel needed than above due to larger size of wood gathered**
Adequate Clothes, Fire Skills, Adequate Sleeping Bag, Foam Mattress, Tent	Matches, and all the gear of a well prepared backcountry camper	Basic fire skills and proper use of camping gear	Very very low energy burn in constructing shelters. Just set up tent & sleeping bag	8-10hrs steady sleep or more. Enjoy!	Maintain small sitting campfire while awake—leg thick logs or less	Very small woodpile or no wood fuel needed at all.

This chart created by Dale Kiselyk, and based on extensive experience using all the shelters in the chart.

COMMONLY USED SHELTERS IN BOREAL FOREST SURVIVAL

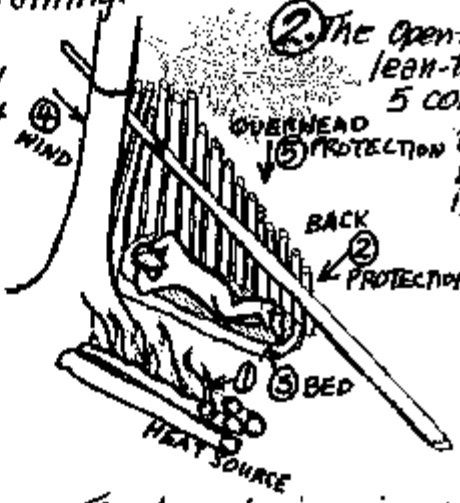
Derived from the book "BUSHCRAFT" and other works by M. Kochanski

The following are the most frequently used shelters in Boreal Forest survival and survival training.

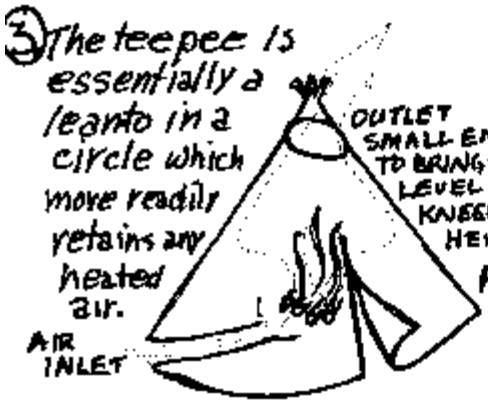
(1) Sleeping between the fuel pile and a fire under the most protective tree found in the general location is about as simple as it gets. In very cold conditions there is a very large fuel requirement = X.



(2) The open front lean-to has 5 components that may be used in 32 ways.

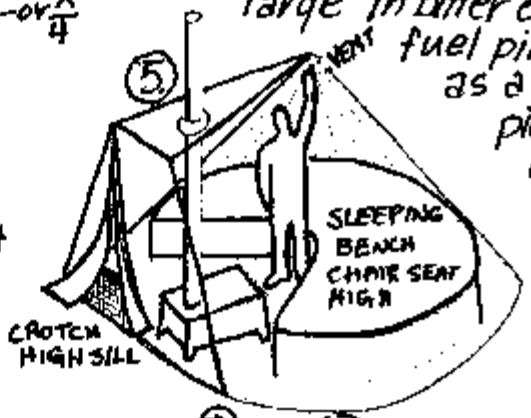


(3) The teepee is essentially a leanto in a circle which more readily retains any heated air.

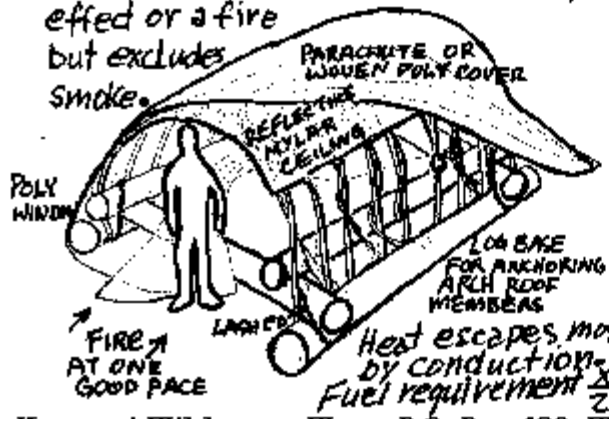


Fuel requirement equals $\frac{X}{3}$ or $\frac{X}{4}$

The lean-to is an improvement on (1) by configurating the fuel into a better shelter. This shelter gets by without survival kit shelter components but the fuel needs are very large in bitter cold - a fuel pile as big as a small pick-up with canopy every 24 hrs. = X



(4) The greenhouse type, heat capturing shelter is warmed through a polyethylene window that allows in and traps the warming effect or a fire but excludes smoke.



Heat escapes mostly by conduction. Fuel requirement $\frac{X}{2}$ to $\frac{X}{3}$

Shelter (4) and (5) can be heated with a suitable stove. The weight of a stove is offset by the ease of heating with such a small amount fuel. The amount of fuel used by (#2) at -40°C would heat (5) for 10 days or more. Fuel req = $\frac{X}{10}$.

5. FIRE

One should have the means and skill to light a fire under any circumstances. In the cold it makes sense to light a fire immediately to keep warm, rather than later to thaw one's self out. Once a fire is established, the next concern is an adequate stock pile of fuel to last until the next day. If it is not raining or snowing there may not be any immediate need for a shelter outside of sleeping between the fire and fuel supply. A resilient bed can be made with just about anything at hand. In some circumstances it may be most convenient to sleep sitting up. Mors Kochanski

Types of Fire Lighting Materials:

Tinder: Tinder is made from materials that catch a spark readily, or to which a coal can be added which can then be blown into a flame to actually start a fire. You can find synthetic and natural tinder.



Synthetic Tinder: Charred cloth, dryer lint or cotton batten, hand sanitizer, steel wool, synthetic petroleum tinder, and pressed sawdust and wax.

Natural Tinder: True tinder fungus, shredded inner tree bark, fine grass, fine birch bark, or charred natural materials such as wasp nests.

Kindling: Is any material that will light easily by the application of a flame.

Synthetic Kindling: Fire Paste, magnesium shavings, fuel tablets, pressed/oiled sawdust, paper, cardboard, steel wool, candle, cotton batten & wax, dryer lint, and many more. Some of the mentioned kindling will also serve as tinder - see above.

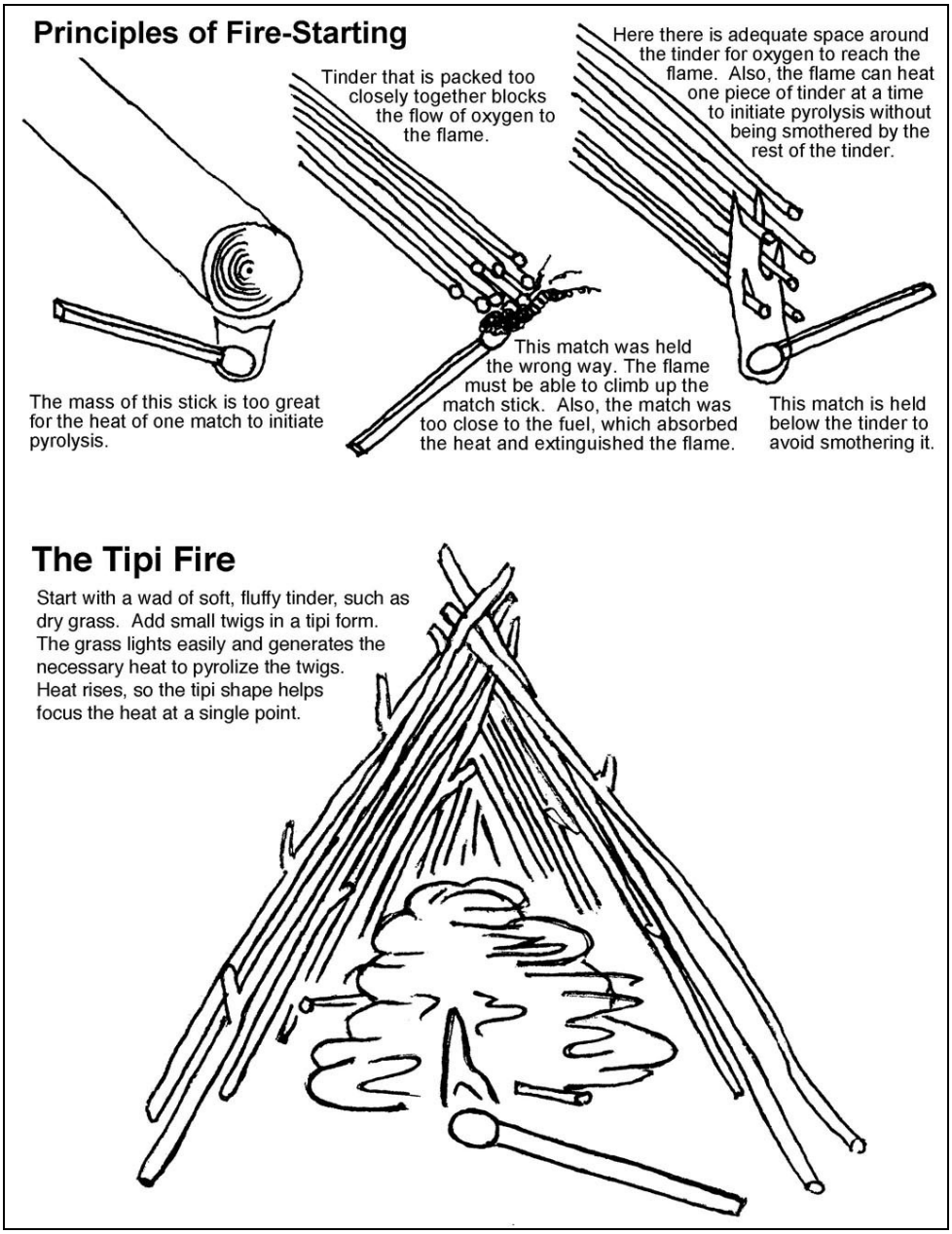
Natural Kindling: Dry red pine needles, birch bark, inner bark of trees, dry grass, feather sticks, resin soaked conifer bark, old man's beard (only in dry weather), small twig bundle, and wood shavings.

When it comes down to good fire lighting skills, I believe one should concentrate all initial fire lighting practise only using natural tinder and kindling until you have mastered fire lighting in all seasons, and at all times of the day or night. This skill can not be stressed enough. It's true that fire lighting is made easier with the tremendous variety of synthetic fire lighting aids available in stores today. However, the reality is that if you do not have the store bought fire starting aids with you in the bush, then you have no choice but to go back to using readily available, natural tinder and kindling. DK

Basic Fire Lighting



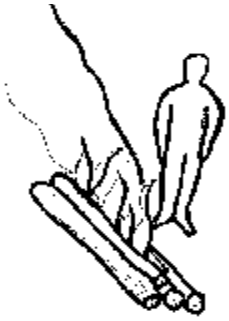
- Fires are like people - they thrive on attention!
- Successful fire lighting requires the right combination of AIR, HEAT, AND FUEL.
- Always start with very small sized fuel (match stick thickness) and then once the fire is going, you can add progressively larger and larger fuel.



COMMONLY USED FIRES IN BOREAL FOREST SURVIVAL

(Derived from the book "BUSHCRAFT" and other works by M. Kochanski)

The following are the practical fires used in modern Boreal Forest Survival where fuel is plentiful.



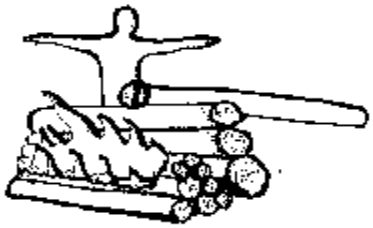
The Parallel Wood Fire (warming & cooking); Firewood lengths from half to one and a half one's height are laid parallel to each other and to the wind. Nine times out of ten, this is the fire of choice. The King of Fires is three hug sized dry spruce logs the length of your height.



The Crosswood Fire (warming, cooking, and sectioning): Long firewood is used without cutting it into short lengths. The fire stops burning where wide enough spacing occurs. The ends are stockpiled for night time use if needed.



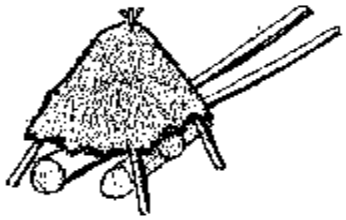
The Star Fire (sectioning): Awkward long logs are burned through into more manageable pieces when no axe or saw is available. When the spaces between the burning pieces of wood are greater than the width of the palm, combustion tends to stop.



The Wall Backed Fire (warming): This is a special version of the parallel wood fire where the wasted energy on the far side is better utilized. The wall redirects most of the warming action to the near side, spreads the flames into a broader sheet, and draws smoke higher over the head. This is an especially useful fire in bitter cold.



The Snow Surface Fire (moderate but steady warming): When a fire is needed on top of deep snow and fairly large diameter dry spruce logs are available, this is the longest lasting fire lay known.



The Signal Fire (almost instant smoke signal): This fire generates large volumes of smoke within two to three minutes of being ignited. It can be built large or small and in survival situations three signal fires can be set up in a large triangle to increase the odds of rescue.

6. WATER REQUIREMENTS

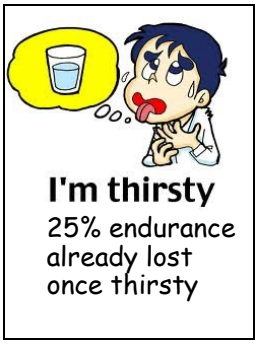
What water does for our body:

- Water aids in the transport of nutrients, oxygen, enzymes in one body system, and water aids with the elimination of waste products in another. It participates in muscle toxicity, temperature regulation, cellular upkeep, it combats fatigue, and contributes to proper brain function.
- Our bodies are composed of two thirds water and so it is easy to understand how a lack of water has extensive negative effects on the above processes..

What happens when we lack water (water deficit % of initial body weight):

- Mild Dehydration = 01-05% - Thirst, vague discomfort, lazy, flushed skin, impatience, increased pulse rate, nausea, urine output slowed.
- Moderate Dehydration = 06-10% - Dizziness, headache, laboured breathing, tingling of limbs, dry mouth (absence of saliva), blue color to skin, indistinct speech, inability to walk, urine output decreased.
- Severe Dehydration = 11-12% - Delirium, twitching, swollen tongue, inability to swallow, deafness, dim vision, shrivelled skin.

Other effects of dehydration include; thickened blood, slow circulation/less nutrient flow to the brain, disorientation, irritability, fatigue, cramps, body temperature fluctuations and predisposition to frost bite, hypothermia, heat cramps, heat exhaustion, and heat stroke.



How much water should you be drinking daily to avoid dehydration?

- drink enough fluids daily to eliminate a minimum of 1 litre of urine per day.
- Drink enough fluids to keep your urine color clear and copious.
- Drink at least 2-4 litres of water per day and increase to 4-6 litres per day when in a stressful survival situation.

How do we find enough safe drinking water in a survival situation?

- With the exception of deserts and dry prairie landscapes, water is usually not hard to find in the wild. If rescue is likely, you may have to go ahead and drink untreated water knowing that you will be treated for illness once rescued.
- Collect dew, dig a sump hole near wetlands, squeeze water from sphagnum moss, rain catch, streams, rivers, and lakes.
- Always assume that all ground water is contaminated and boil it first and drink warm if possible. Alternatively, you could carry a water filter system.

7. GETTING ENOUGH SLEEP

How long can you go without sleep before survival is compromised by sleep deprivation? The measure of the quality of your survival knowledge is how you meet your sleep needs in spite of the harshness of the prevailing conditions Mors Kochanski

- One of the big challenges, especially in cold and bitter cold weather, is to stay warm and comfortable long enough to allow for 6-8 hours of sleep in a 24 hour period. For example, if you are forced to stay out overnight, in an open faced lean-to with only a fire and clothing to keep you warm, and if you are lacking an axe or saw to gather large logs for burning, then you will quickly find that your sleep will be interrupted every 45 minutes to an hour and a half in order to adjust and add to your fire. This situation is exhausting!
- Your body requires 6 plus hours of deep sleep to assist in recovery from injuries and to replenish your energy that is lost through the tough physical rigors of survival situations.
- If you go without sleep for longer than 2 days, your begin to enter into a failed mental state and cognitive reasoning quickly erodes.
- Taking 2 hour naps can be just as useful as sleeping continuously for 6-8 hours.
- In bitter cold, you may find that it may be beneficial to sleep during the daylight hours when temperatures are warmer and stay awake through the coldest part of the night while taking care of your shelter and fire requirements.



- In survival, it is vitally important to have a solid understanding of the importance of being prepared for outdoor activities in when there is a risk of being forced to spend the night out. If your clothing was well chosen then you discover that you can obtain the necessary warmth and sleep without the need for shelter or fire. If your clothing is inadequate, then you will need to rely on shelter and fire to add to your warmth and comfort so that you will be able to rest and obtain at least 6-8 hours of sleep in each 24 hour period.

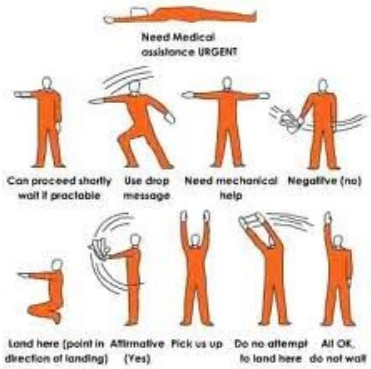
8. SIGNALS

If you are lost and in a survival situation, one of your tasks is to make it easier for Search And Rescue personnel to find you by staying put. But as you wait to be found, there are things you should do to make your presence more obvious so that searchers discover your location sooner. Basically, you are trying to make yourself larger, louder, more visible, and if possible, you can change the landscape around you to mark your position:

1. **Appear Un-natural:**
   - Drag logs into clearing and arrange them in triangles, squares, stars, or spell SOS.
   - In snow, you can stamp out signals or use logs or even colourful equipment such as backpacks or rain gear.
   - Hang colourful and unnatural objects (plastic, backpacks, anything reflective) in trees in your area for ground searchers.

2. **Ground to Air Signals:** Look for clearings and be prepared to signal to aircraft with the following signals:

   X - Unable to Proceed
   | - Serious Injury
   F - Need Food and Water
   || - Require Medical Supplies
   Y - Yes
   N - No
   - Going this way

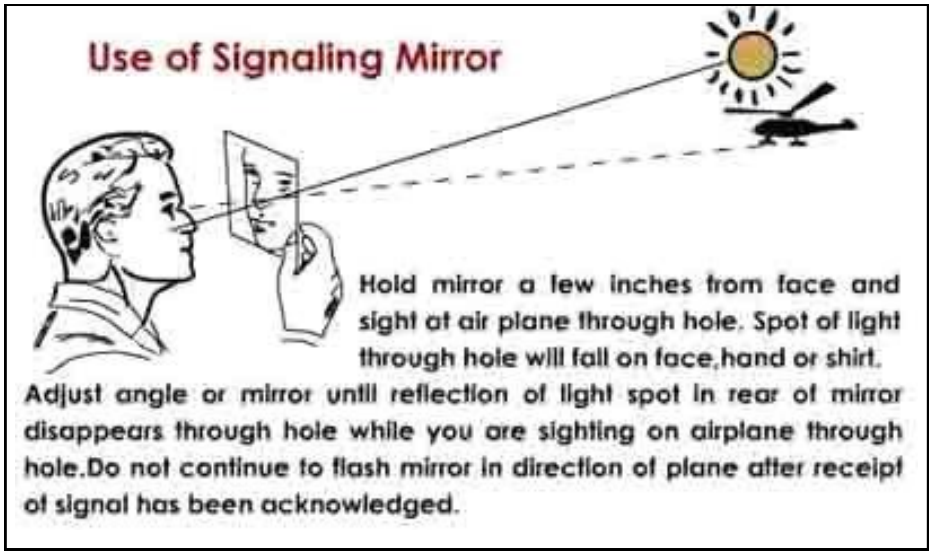


3. **Make Noise:** Three blasts of anything is an international signal for distress. Produce the sound every 20 minutes or so and more often if you think that searchers are in the area.
   - 3 whistle blasts
   - bang a pot 3 times
   - bang on dead trees 3 times
   - 3 air horn blasts
   - fire gun 3 times
   - yell 'help' 3 times (exhausting)

4. **Fire and Smoke:**
   - During darkness, burning a large flaming fire will attract attention of ground searchers and aircraft.
   - During daylight, have at least one (preferably three) smoke producing signal fires that will fire up quickly when aircraft are near by.

5. Signal Mirror and other reflective objects:

- use pots, knives, metal water bottles, survival blankets, or any metal or shiny reflective object and attempt to flash a reflection towards searchers.
- always carry a signal mirror in your survival kit as it is very effective at signalling searchers over a great distance - signal mirrors can also be useful as a mirror to remove obstructions from the eye and other hard to see areas of the body.



6. Other modern signalling devices:

- Cell Phone - given that your batteries are good and there is reception in your area.
- CB Radio - in use less as it is being replaced by modern technology
- 2 Way Radio - limited range - try different channels throughout the day in hopes of making contact with others in the area.
- Satellite Phones - expensive but unlimited range.
- Personal Locator Beacon - a device that sends a signal to a search and rescue satellite and lets searchers know you location within a few minutes of activation.
- InReach and Spot devices are the new form of Personal Locator Beacons. Our preference is the InReach Device by Garmin

9. FINDING FOOD

Living off the Land: For most people in our modern world, it is totally unrealistic to think about living off the land. The reality is that:

- Very few people venture into the bush with modern firearms, and hunting with improvised, primitive weapons requires considerable skill and is usually a great waste of precious energy with marginal returns.
- Trapping small animals can be productive however you still need considerable knowledge of animal behaviour, animal tracking, and trap construction to be successful.
- Even if you possess an extensive botanical knowledge, attempting to provide all you food needs by foraging local plants is not something that can be undertaken without a great deal of prior planning and preparation.
- Living off the land is not something you just walk in to bush and start doing. It requires tremendous skill and knowledge to provide even just your basic needs.



Fasting for short term survival: In attempting to live through a survival episode, it is more preferable to only drink water, than to eat less than the minimum number of calories required each day. In not meeting the basic metabolic rate, which may be from 1100 to 1700 calories per day, there is such a disproportionate use of protein reserves in comparison to fat reserves that one may die of protein depletion in at least a quarter of the time as compared to fasting. In fasting there is a more balanced use of proteins and fats so that a healthy person of normal weight of 65 kilograms will not begin to suffer any irreversible deficiencies for at least six weeks. Overweight persons may get by for longer than this. The record stands at over a year.

The advantages of fasting (on water only): By realizing that there is no need to eat for six weeks, panic may be more easily held in check. Fasting can act as the stopgap measure until you have had the time and opportunity to become competent in living off the land. You can learn fasting techniques in less time than you can learn to use one edible plant. In some instances you may have no choice but to fast. Unless you are reasonably expert and well practiced in hunting and trapping, and game is plentiful, or you happen to have a firearm, you may mismanage your energy budget. You could spend more energy catching and eating the animal than you would have saved by resting. This takes into account any fruitless attempts. If you are to subsist on plants you may have to know from 50-200 plants to have a workable number in your given area of survival.

Fasting usually brings on greater clarity of thought and improved recall that assists in making plans and decisions. In a true fasting state, within two to six days your energy reserves become available to be used at a more normal rate of expenditure. You may not feel like it, but you can now exert yourself to the point of expending four to five thousand calories per day.

On a diet that is less than your basic metabolic rate, you may collapse from exhaustion. If you are going to walk out, you will do better in a fasting state. In an experiment in Sweden, ten people walked 320 miles in ten days ingesting only the spring water found enroute. On being examined by doctors after the walk, all were in perfect state of health.

You generally heal more quickly in a fasting state and overcome any illness more readily. The ketosis in fasting usually brings on a euphoria, making the discomforts of survival more tolerable and any depression less acute.

To fast, simply eat nothing and drink far more water than you normally would. The water should be brought to a boil and drunk as hot as possible.



Problems with fasting (Ketosis): This is the build up of undesirable levels of ketones in the blood as a by-product of fat reserve metabolism. The situation may be somewhat eased by drinking more water. One should attempt to make the urine as colorless as possible.

The general impression seems to be that the first major fast is the most uncomfortable one. Your past eating habits may also have a considerable influence on the ease of comfort experienced in your first fast. The body has a major detoxification job to do the first time. Once you have detoxified you find fasting to be relatively pleasant. The detoxification process works on the principle that your body will burn up first what it needs the least. The substances first burned up are those that accumulate in your body that can not be eliminated by the normal means. Uric acid and cholesterol are the first substances to go.

Some of the unpleasant and temporary side-effects hat you might expect are: foul breath, severe headaches, aching joints and teeth, loose teeth, coated tongue, boils, foul odour about the body, pains of various levels of intensity in the esaphogus, and fasting may also result in prescription glasses becoming too strong. These conditions are far more tolerable than the conditions associated with death in a quarter of the time due to rationing food or nibbling here and there.

Mors Kochanski

10. Survival Kits

Essential items to always carry on any outdoor activity

1. **Fire Making Kit** - lighter/matches/flint/fire starter. Carry one fire starter in your jacket or shirt, one in your pants pocket, and another in your pack
2. **First Aid Kit** - individual kit/person + basic meds (Tylenol, benadryl, Advil, etc)
3. **Signalling Device** - signal mirror, whistle, or air horn, & knowledge of signal fires
4. **Navigation** - map & compass, GPS, cell phone, with extra batteries or solar charger
5. **Extra Clothing** - layering system and include hat/toque, gloves/mitts, wind or water-proof shell layer, bug net and extra socks.
6. **Knife** - preferably a fixed blade with a full tang and durable
7. **Rope** - 10m of Nylon cord (best is Parachute cord)
8. **Flashlight** - headlamp or flashlight, and extra batteries
9. **Water** - metal cup, metal water bottle, or pot to boil and purify water

Two Extra items that make an unexpected overnight stay much easier

10. **Emergency Shelter** - tarp, large orange garbage bag, Mylar blanket's, or 4m x 4m sheet of plastic (best), and some knowledge of how to erect effective shelters
11. **Bow Saw** - or some version of a collapsible saw. The preferred size is a bow saw an arms length long. The saw is preferred to an axe or hatchet because of the considerable risk of injury with using an axe. In addition, you can teach a person to be skilled with a bow saw in 5 minutes but it takes many hours of training and practise to become skilful with an axe

Two extra items that wise people take when they **do** expect to stay out overnight (thus eliminating all the exhausting work of building a shelter and maintaining a fire especially in cold temperatures

12. **Sleeping bag** - a sleeping bag rated at least for the coldest expected temperature and a good waterproof cover or bivouac sac
13. **Mattress** - a self inflating or foam mattress or the knowledge on how to make a bush bed when needed

Miscellaneous items that are useful depending on the type and length of your outdoor adventure

duct tape	iodine tablets or other water purification tablets or filter system			
sewing kit	snare wire	sharpening stone	Mylar blankets	oxo cubes
candles	sunglasses	bug spray	portable stove	snacks
fishing kit	log book	utensils	pots & pans	emergency beacon
more clothes	rain gear	spare footwear	sunscreen	extra batteries
snow shovel	fire starters	materials to make Roycroft snowshoes		avalanche probe

Final Words

On Survival:

- Mental Attitude is the #1 survival skill to learn. We can assess our level of survivability with regards to mental attitude, by examining how we deal with the world in our everyday life, and by reviewing the "12 Rules of Survival" on page 10 of this booklet.
- Regarding the hard skills of survival, I suggest that you search out hands on courses on wilderness survival, and begin building you experience and confidence in dealing with the basic needs that your body requires to live comfortably. Food, water, shelter, fire, clothing, sleep, dealing with temperature extremes, and confidence with knife/ax/saw skills

On Shelters:

- Shelter building takes practise and shelter sleeping (especially in cold weather without a sleeping bag) requires practise as well. The best way to get good at shelter building is to go out and build a shelter and spend the night in it, at all times of the year, in all types of weather. By experiencing this, you will learn what works and what does not work, and soon you will find that you waste little time on silly notions about shelters and get right down to building something that is quick, easy, and effective. In cold weather, given a choice, experience has taught me that I would much rather have in my possession, a good bow saw and a 4m X 4m sheet of clear plastic (to build a super shelter), than spend a dreary and miserable night sleeping in a log lean to beside a smoky and spark throwing fire.
- In the courses that I teach, it always surprises me when I show participants how to build a shelter and then ask them to go ahead and build something similar. In most cases, the student constructed shelters are hopeless attempts at something worthwhile and effective. Somehow, something always gets lost in the translation or I fail in my communication of shelter materials to the students. For example, when I cut a sapling that is as thick as my thumb, and then I show the students the sapling, I always demonstrate it by holding it next to my thumb and explaining that "this is a thumb thick sapling - not a wrist thick or pencil thick sapling - just thumb thick". For some strange reason, almost every student comes back with a great variety of sapling sizes ranging from pencil thick to almost as big as my arm. This same phenomenon is transferable to all aspects of shelter building including; collecting spruce boughs, ridge poles, bed frames, and shingles. I'm sure it has to do with an inadequate amount of nature experience, due to so few children playing in the wonderful forests, swamps, creeks, river valleys, and other rich natural areas near our towns and cities. When I was growing up, my parents gave me rope, axes, knives, saws, nails, matches, pots and pans, and they encouraged me to head off into the bush to build tree forts, trails, swings, rafts, and anything my adventurous mind could conjure up. It seems like in the last 20 years, so many children have been cushioned and overprotected from becoming familiar with incredibly useful tools like a good bush knife or belt axe.

On Fire:

- Many people enjoy lighting fires, and most everyone enjoys sitting beside a nice fire. Humans have been using this skill for thousands of years and I believe we are all genetically wired to be attracted to the warmth and beauty of fires.
- There are so many amazing ways to build and maintain fires. There are also a lot of different types of fires and fire arrangements as mentioned earlier in this booklet. But above all, the coolest thing I've ever learned about fire, is lighting a fire using a bow drill and the fire by friction method. Rubbing sticks together to produce a small ember, which in turn is blown into a flame, is pure magic. It always gives me a thrill and every time I attempt it, I learn something new.
- It would be easy to write a book just on the ways to start and use a simple survival fire.

On Water:

- I have endured 48 hours without food or water half a dozen times, and on several occasions, I have gone without food or water for four days and four nights, and I have never suffered any ill effects. It was not pleasant, and I did suffer from thirst, hunger, headaches, and nausea, but for the most part, it was not a big deal. Every time I put myself through this fasting from food and water, I made sure to expend as little energy as possible, and I had with me a sleeping bag and tarp, so that my shelter was taken care of. I did not have a fire at any time and mostly I just stayed in one small area and let time pass by.

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