

CHAPTER 13 – SURVIVAL

Objectives – Upon completion of this chapter, you will be able to:

- Stay warm by building a fire and by building a shelter.
- Summon help.
- Organize your group to deal with emergencies.

PREPARE FOR THE WORST AND PLAN FOR THE BEST

By John Lindner, March 2008

You won't survive if you don't expect to.

Hypothermia, fire starting, and survival planning are the major issues relating to survival. Many other situations could test your ability to survive in the wilderness.

- Your survival kit, **with you** (not at home or back at camp), and the knowledge and ability to use all of its contents under any conditions are very important.
- A **positive mental attitude**, (avoiding panic and dealing with your situation), **is the most important element for increasing your survival odds!**

HYPOTHERMIA AND OUTDOOR SURVIVAL

Hypothermia (exposure), the lowering of the body core temperature, is **the number one killer of outdoor recreationists**.

1. Seek and create shelter from cold, wind, snow, and rain.

If a vehicle or manmade structure is not available, retreat to timbered areas for shelter construction and fire. Use natural shelters like the windless side of ridges, rock outcroppings, caves, slope depressions, the snow hole around the base of a large standing evergreen tree, dense stands of trees, or spaces under downed trees. Improvise a windbreak or shelter from stacked rocks, blocks of snow, tree trunks, limbs, bark slabs, and evergreen boughs, or dig a snow cave or snow trench, and cover it with natural materials or a sheet of available material such as a tarp or space blanket.

2. Conserve, share, and create warmth.

Put on extra clothing to conserve body heat. Since cotton, when damp, draws heat away from your skin, remove damp cotton garments and socks. Place damp wool or synthetic clothing over dry wool or synthetic clothing. Loosen tight bootlaces and belt, and remove restricting items like watches and rings to increase circulation and reduce the risk of frostbite. Sit on whatever insulating material is available to minimize heat conduction from your body through clothing insulation layers compressed by your body weight. Place your hands in armpits or crotch. Share body heat to minimize individual heat loss.

3. Generate body heat.

Nibble on high-energy foods (carbohydrates, fruits, nuts, candy, granola bars, etc.). Avoid proteins, since they digest the slowest and require the most energy and water for your body to convert to useful energy. Keep yourself hydrated, but try to avoid chilled liquids since they accelerate hypothermia at the body core. Drinking warm, not overly hot, liquids helps restore internal temperature to critical internal organs in a conscious victim. Muscle activity increases internal body heat and blood circulation through extremities.

Think – blood circulation equals heat circulation.

4. Build a fire.

Find dry wood such as lower tree branches and bark from lower branches or downed timber. Once a fire is established, damp wood will burn as it dries. Build your fire in a sheltered area, with wood available nearby and protected from strong winds. In deep snow conditions, build a firebase first with large logs or the heat from the fire will melt the snow under it and it will sink to ground level. Place your fire starter on the base, surround it with small dry twigs and hold kindling above the fire starter, then place a hatch work of kindling and slightly larger wood on the branches. Light fire starter and blow lightly to help its flame ignite the kindling. Add progressively larger wood to the flame area. Carry dependable fire starters and backup ignition sources. An actual emergency – which may include darkness or pouring rain – is not the time to try to read a set of instructions on a fire starter that you have never tried before. Be sure a product marketed and sold for survival use is worthy of trusting your life to (see Survival Fire Starting below). Practice these skills and master them before you need them, since under survival or hypothermia conditions your life will depend on it. Any of the following conditions – wind/adverse weather, darkness, cold shivering hands, or the panic of being lost – can make the simplest task a struggle.

5. Conserve your body warmth by reducing heat losses.

The body loses heat by respiration, evaporation, conduction, radiation, and convection.

- To minimize heat loss by **respiration**, cover your mouth and nose with loosely woven material such as knit wool. This will pre-warm cold inhaled air with warm moisture (normally lost) accumulated on the fabric when you exhale.
- To reduce evaporation through excessive **perspiration**, wear breathable layers of clothing. Keep your insulation layers clean and dry so they provide the most benefit.
- To avoid heat loss by **conduction**, use a closed-cell foam pad and/or other non-heat conductive material between your body and the cold wet surface you are sitting, kneeling, or laying on. This insulation is particularly important if you are already wet.

- To lower heat loss by **radiation**, keep your head, neck, hands, and feet covered with insulating layers. Warmth continually radiates off bare skin surfaces even in a still air environment.
- To reduce heat loss by **convection**, protect your body from the heat-robbing effects of cold wind across exposed skin.

6. Look for hypothermia symptoms.

In the first stage, the victim begins shivering, moves with poor coordination, slurs speech, and shows poor judgment. By the second stage, when the body temperature is below 95 degrees, muscular rigidity replaces shivering, and the victim becomes more irrational. At this stage, the victim needs warmth immediately from external/internal sources and protection from further heat loss. The victim will not realize he or she is in danger and may remove clothing due to a false sense of warmth after the first stage. Avoid alcohol, since it accelerates heat loss and gives a false feeling of warmth.

SURVIVAL FIRE STARTING

The following fire starters, fire ignition sources, and fire accelerators are some of the many items available for use in an outdoor survival situation. This list is an example of the numerous possible options available to start a fire in an emergency. Some items were never intended to be a fire starting item, but through improvising, they can be used with some success. Also, some of the items listed are commercially marketed for survival and/or emergency use. In actual use, especially under adverse conditions, many have proven undependable and not worthy of trusting your life with. It is highly recommended that you also carry a backup item for anything you include in your survival kit.

Other aspects of the fire starting items that you should consider are:

- **Shelf life** – Will the item work a year or more after you buy it?
- **Reliability** – Will it work 100% of the time when needed?
- **Physical size** – Is it adding an unreasonable amount of weight or bulk to your survival kit?
- **Safety** – Are there any risks to using it?
- **Effectiveness** – Does it generate enough heat to light damp tinder?
- **Usability** – Is it **easy to use** if your hands are cold or you are shivering, if you are injured or panicky, if it is after dark or windy, extremely cold, raining, or snowing. Can you still make it work? This **would not** be the time to try to read the instructions on how to use an item or to discover it does not work as you expected.

**Get to know what you have in your survival kit before you need it –
your life could depend on it.**

Fire Starters

Fuel from whatever vehicle may be available	Uninta	Steel Wool (#0000)
Coleman Fire Starter Sticks	Metal Match	Hexamine tablets
SuperMatch Fire Starters	FireUp	Hand sanitizer gel
NP3, M2 Fire Starter (military)	Blast Match	Bow & drill
Coghlan's Emergency Tinder	Lightning Nugget	Hotcakes
Coghlan's Fire Sticks	Strike Force Tinder	Fire Ribbon
FLAME, Matchless Fire Kit	Lightnin' Bug	Fire Tabs
Highway Fusee (road flare)	EcoLite	Surefire
Cigarette lighters	Safesport Fire Sticks	Fire Muffin
Lifeboat Matches	Camps Fire Solid Lighter	Flamglo
BCB Adventure, Matchless Fire Set (British)	VEB Pyrotechnik, Flare/Fire Starter (East Germany)	Calcium Carbide
Firebrand Fire Starting Pellets	Lint (from a clothes drier)	Raton Rocket
Cotton balls saturated in vaseline	AlcoBrite, jelled alcohol	Strike Force cubes
Potato chips (most brands contain enough oil that they will burn!)	Stormproof and waterproof matches (numerous brands)	Ultra Lite
Potassium permanganate & glycerin	Optimus Fire Lighter	Fire Paste
SparkLite, Aviation Survival Fire Starter	Alcohol in most brands of liquid filled compasses	Trioxane
Eye loupe or magnifying glass with bright sunlight		Many others...

Warning – If your journey to the trailhead involves air travel, you need to be aware of the restrictions the Transportation Security Administration (TSA) places on the transportation of flammable materials. TSA prohibits cooking fuel, Fire Ribbon, and strike-anywhere matches in checked and carry-on baggage. A complete list is at <http://www.tsa.gov/travelers/airtravel/prohibited/permitted-prohibited-items.shtm>.

SENDING FOR HELP

If you need to send for help, review the situation and evaluate the facts as you outline information to provide to a rescue group.

- If possible, send at least two people and have them mark the route on the way out. They should note the terrain, distance, and the time from the victim to a road or landmark.
- Once they reach a telephone, they should call either the county sheriff or a park ranger, if in a National Park. These people will contact search and rescue teams. On a cell phone, call 911. You may be relayed to search and rescue from a surprisingly distant responder, especially using analog roam.

In a survival situation, there are no rewards or punishments – only consequences!

SURVIVAL CONCEPTS AND PROCEDURES

By Nick Weighton, March 2008

There are unlimited possibilities as to how you will handle a survival situation. No one has all the answers nor can anyone anticipate all the variables. Knowledge, training, and planning will significantly increase your chances of surviving. How you handle an extreme challenge will be up to you and your fellow hikers.

Preparing for survival begins long before venturing into the wilderness. A crisis is not the time to start thinking about items you need or what you should have done before leaving home. Educate and equip yourself for potential survival in the terrain and climate where you will be hiking. Contemplate likely emergencies and include contingencies in your hiking plan.

Leadership and organization are important components of any hike. Identify all leaders (hiking, medical, and survival) well before your hike and disperse the roles between at least two individuals. In a medical emergency, the hiking leader remains in charge while supporting the medical leader's needs. In a survival mode, the survival leader takes charge. Planning a survival strategy, setting priorities, assigning tasks, and anticipating future tasks are a few of the survival leader's responsibilities.

Work as a team – survive as a team! Each individual is responsible for going to the field properly prepared for hiking and survival. In a survival situation, everyone must contribute to the good of the team and its individuals. Teamwork will be paramount. You can offer suggestions, but comply with the leader's decisions and instructions. Do your tasks, then see what else needs to be done. Try to maintain a positive outlook. This will not always be easy and stresses will build. Your inner self will soon surface. If someone is having difficulty handling a crisis, try to deal with him or her logically, but the survival leader may have to use stern measures to resolve problems. Irrational actions by one or more individuals are counterproductive to survival.

An injured person(s) gets first priority of everything. Shock, dehydration, and hypothermia become additional threats to their well-being so the entire team must respond to their needs. Do this as safely as possible so as not to create more casualties. Consider various courses of action but carefully weigh your decisions due to the complex nature of medical emergencies.

The first thing to do in a survival situation is **not** build a fire or a shelter or get water. You literally **stop** and get control of yourself so you can make rational decisions. Even under extreme circumstances, stop briefly and think before reacting or there could be dire consequences. The next fluid steps in survival are: Think, Plan, and then Take Action. Evaluate the situation, consider your options, and decide what to do. Select an adequate survival site within the immediate area or a short distance away. Get into forests or the leeward side of ridges and slightly uphill from streams, lakes or ponds. Forests offer the most resources but you may have to survive above tree line. There are solutions for both environments. Analyze natural and manmade resources and consider what you can do with them. A little thought and imagination can turn simple things into useful survival resources. Develop a plan based on relevant factors such as resources, weather, time of

day, and status of the group. Come up with a plan and put it into action. Stay flexible and adjust your plan to suit changing conditions.

Shelter options vary depending on resources and your ability to use them. Knowledge, training, and equipment come into play in selecting a good option. Basic shelters like a pup tent or tarped hut are adequate for warm weather and are simple and easy to build. Advanced shelters like a tree tent, snow trench, snow block hut, or snow cave are essential for chilly to cold weather. They are more complex, require more resources, and take longer to build but can be very effective. Do not think of shelter options as a numbered priority list, but rather as equal possibilities. Any of several shelters might work. From these options, choose the **best** shelter for **your situation**. This is more relevant than saying, “Always build a snow cave in winter.” In reality, it might be the worst shelter if conditions are not right or you have never dug one before.

Constructing a shelter can take half an hour or several hours. Having the right tools and materials will make the job much easier and quicker. If resources will be limited, you must plan for this and bring extra items. Build a strong shelter that can withstand the elements. Put the entrance downwind if on level ground or down slope on hilly terrain. Close up the entrance as best possible. Insulate the floor, walls, and roof with manmade or natural materials. Improve your shelter each day until rescue arrives. (See *Survival Shelter Construction Methods* on the WTS web site for a wide variety of shelters and building techniques.)

Shelter and fire (discussed above) can alternate as first or second priority in survival, depending on circumstances. It is not absolute that you first build a fire in survival; it may be more important to construct a shelter. Shelter is vital to avoid exposure to the elements; fire is a necessity if someone is wet or hypothermic. Let logic and common sense guide you.

Three of anything is the international signal for help, but not everyone knows what certain signals mean. When to use signals in survival will depend on the situation and probability of others hearing or observing your signals. Rescuers generally search during daylight when it is safer and visibility is better, but they might push the limits when children are involved. Carry manmade signal devices and augment them with natural materials when available. Signals literally include smoke and mirrors along with whistles, bright colored tarps, perhaps high-tech gear such as flares, and a variety of other items. Hang bright colored thermal blankets or tarps in trees or in the open. You can form letters or symbols on the ground or snow using tarps or natural materials. When making letters or symbols, make sure they contrast with the surrounding ground or snow. Have auxiliary signal items handy – you might only get one chance.

If you include contingency procedures in your hiking plan, you will increase your chances of survival and/or being rescued. Flexibility is a key to surviving. There is no predetermined set of rules or exact procedures to follow. You must constantly consider your choices and make sound decisions throughout a survival ordeal. Always evaluate the full spectrum of possibilities and options available to you. There are workable solutions to most survival situations; use your mind. Face reality, approach problems with a determination to succeed, work as a team, accept and bypass overwhelming obstacles,

and keep up a good attitude. Remember, your ultimate goal in survival – is to survive. You must do all you can to make that happen.

Think positive – be positive!

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[WTS Survival Guide](#)

[Shelter Construction Techniques](#)

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