WTS SURVIVAL GUIDE
CONCEPTS AND PROCEDURES

By Nick Weighton, October 2012, Revised 2016

There are unlimited possibilities as to how you should and will handle a survival situation. No one can anticipate all the variables. Knowledge, training, and preparation will significantly increase your chances of surviving.

Here are some fundamental procedures and suggestions if you are ever in a survival situation. How you handle an extreme challenge will be up to you and your fellow hikers.

I. PRIOR PLANNING & PREPARATION - "THE 3 PS"

- Surviving begins long before venturing into the wilderness. Applying the “3 Ps” will improve your chances.
- Training courses provide knowledge and skills on what to do and how to use your equipment.
- You are individually responsible for having the right gear. Evaluate your pack for the right equipment and basic survival items.
- Think through some simple survival scenarios for the region you’ll be hiking in and what you would do. Consider some of the "what ifs." Prepare and equip yourself accordingly.
- Hiking plan should include contingencies for medical and survival emergencies, telling someone about your trip, overdue time and follow-on actions by your emergency POC.
- Old scout motto "Be prepared" definitely applies.

II. SURVIVAL VS BIVOUAC

- There are major differences between bivouac and survival but many fundamentals of bivouacking carry over to survival.
- If prepared to bivouac, you have greatly increased your chances of enduring a survival situation.
- There are workable solutions to most survival situations, use your mind.
- Ultimate goal in survival is to survive. Your task is to determine the best way to do that.

III. LEADERSHIP & ORGANIZATION

- Identify hiking, medical, and survival leaders for your group beforehand. Choose the best qualified.
- Okay if hiking and survival leaders are the same person but never dual task the

medical leader. They cannot effectively direct the team and oversee initial treatment of a casualty. Team activities and casualty care will require the full attention of two individuals.

- In a medical emergency, hiking leader remains in charge while supporting the medical leader's needs. In a survival mode, survival leader takes charge, determines courses of action and oversees the group's activities.
- Once in a survival mode, evaluate the situation, quickly consider options and make a decision or a set of decisions (i.e. "Dark in one hour, we must start shelters now." or "We'll descend below the treeline then evaluate resources. We'll attempt cell phone calls and review basic survival procedures on the way down.").
- Develop a quick plan of action based on equipment, natural resources, forecast, time of day, time of year, status of group, and other factors. Adjust your plan later if needed.
- Task organize everyone into teams: shelter building, collecting firewood, getting water, (taking care of casualty).
- Leader monitors group's tasks, rotates people doing harder tasks, adjusts priority of tasks as needed, and motivates and encourages group.
- Think ahead about follow-on tasks. Anticipate what has to be done next, where it fits into your priorities, how long it might take, and the best time to get started.
- Consider upcoming phases of survival: Getting through the first night, what does the group need to do the next day and the next.

IV. TEAMWORK

- Everyone must do their part as team members, can offer suggestions but support and follow leader's decisions and instructions. Work as a team, survive as a team.
- Pack the proper gear. Don't force others to give up their equipment for your oversights or selfishness.
- Try to maintain a good attitude, it increases your ability to get through a situation. Encourage fellow team members.
- Do assigned tasks with determination. When done, help another person or ask the leader what's next to do.
- Surviving won't be easy; stresses will build, your true worth will come out.

V. CASUALTY

- Injured person gets first priority of everything. They are very susceptible to effects of their injury as well as the elements.
- Entire team functions around casualty, but try to avoid more casualties (hypothermia/frostbite). If you can only construct one shelter, rotate members in and out to tend to casualty and get some temporary relief from the elements. Frostbite and hypothermia can set in fast, check each other frequently (you can't

check your own face and ears without a mirror), and take actions to remedy problems.

- Rescue can take a long time. Expect to make do for an extended time with what you have.
- General rule is don't carry someone out if they are badly injured. Transporting can worsen an injury or injure team members. If critical and you have the manpower, consider making a stretcher to litter someone but carefully consider this alternative.

VI. Clothing & Accessories

- Survival clothes should consist of at least three major layers (wicking, warming, shell).
- Synthetic, wool or a combination of these materials provide the best insulation.
- Well insulated headgear, face mask, scarf/neck gaiter, and goggles provide important insulation for the upper core (head and neck).
- Large, loose fitting gloves protect the hands. Inserts/liner gloves allow removal of hands from primary gloves for brief periods. "Fingerless" gloves are useful during shelter construction and survival site tasks.
- Keep clothing and accessories dry, unlayer if overheating, and relayer when dormant or conditions warrant.

VII. Initial Steps, Site Selection and Other Considerations

- First thing you should do in a survival mode is "Stop!" Calm down and regain control of yourself so you can think clearly and make rational decisions.
- Follow-on steps using the mnemonic "STOP" are Think/plan, Organize then Put your plan into action. Develop a plan ASAP and start implementing it. If there is daylight it will pass rapidly and simple tasks become harder at night.
- Select the best survival site quickly, doesn't have to be perfect. Can consider hiking a short distance to a good site but weigh the pros and cons.
- Below treeline – usually ample resources but no guarantees. Forested areas provide windbreaks, shelter building materials, fuel for a fire, and possible sources for water.
- Above treeline – generally limited resources, move down to treeline if feasible. If no choice, seek shelter on leeward side of rock outcrops or ridges. Caves and rock overhangs will be rare. May be able to build rock walls for shelters and/or windbreaks. Use caution around tunnels and mine shafts.
- Analyze resources: Includes natural and manmade items. Physically see what is on hand and evaluate their uses. Knowing what you have to work with will help you make better decisions.

- Natural resources: Consider all options. Use fallen or cut trees for walls and roof rafters; rocks for walls or windbreaks; snow for trenches, blocks or snow caves; leafy or needle branches to insulate roof, outer walls and floor; and snow to insulate roof and outer walls.
- Build slightly uphill from streams and lakes (cold, damp air spreads away from them at night; "warm" air travels up ridges at night).
- Source of water: Use common sense and map analysis. If far away, it will require teamwork.
- Firewood: Finding and gathering wood are big variables. Helps to have cutting tools. Discussed more in "Section VIII. Fires."

VIII. Shelter Types & Techniques

- Based on resources and time determine the best type of shelter to build for your situation.
- Bivy/Custom Designs: Technology, lighter materials, internal framing and reduced costs make a bivy a good choice to carry for emergencies. They are efficient, can be set up in minutes day or night, and are self contained with no extra materials required. May need augmentation in winter with natural insulation underneath or wind barrier. Can be set up within a natural shelter like a lean-to or log frame and bough tent. Skilled individuals can make their own bivies with custom designs and features. They have the same advantages as factory bivies.
- Basic: Lean-to and Open ended "pup tent" are only good in warm to mild weather. Closed ended "pup tent" and tarp-roof hut using logs are adequate in mild to cool weather.
- Advanced: Tree tent, Log hut, Snow trench, Snow blocks, Blowout, and Snow cave are needed in cool to cold weather.
- Build strong for worst case scenario. Anticipate what might happen in next 24-48 hours (wind, rain, snowstorm).
- Put entrance downhill on sloping ground or downwind on flat ground. Critical to close up entrance as best possible. Can make extended entryway (covered "tunnel") 6-10' long and 2'wide x 3' high coming off shelter entrance with closures at each end. Provides double closure thus more protection from the elements, especially when entering or exiting the inner main shelter.
- Insulate floor and roof with 12-18" of pine boughs/leafy branches/grass (plus 12-18" of snow if available).
- Improve each day but must balance workload with conserving energy if limited food. Work for short periods then rest, stay hydrated best possible.

IX. Fires

- Carry 2-3 igniters (matches, lighter, flint) and 2-3 fire accelerators (trioxane

tablets, candles, cotton balls smeared w/Vaseline). What you carry must work under severe conditions and be easy to use. Test beforehand before relying on in an actual emergency.

- Determine if a fire is feasible or worthwhile before spending time and resources starting one. Shelter and fire can alternate as 1st and 2nd priorities depending on circumstances. Shelter is vital to avoid exposure to the elements; fire is a necessity if someone is wet, hypothermic or extremely cold. You set the priorities.
- Gather up all sizes of wood before starting - kindling, small sticks, medium sticks, logs.
- Can often find dry twigs on interior branches of large trees.
- Check before you build a fire - no snow on overhead branches, not too close to shelter.
- Use natural windbreak or make one.
- If snow is shallow, dig down to rock or ground. If on deep snow, use green logs and/or stones for base, maybe metal shovel (aluminum shovel will melt).
- Based on resources and time of year, it may be sufficient to sit around a fire all night and not build a shelter. Or it may not be beneficial to keep a fire going all night, hunker down in your shelter and start a new fire in the morning. Your decision.

X. Rescue Signals

- Carry several manmade signal devices and augment them with natural materials when available.
- Employ multiple signaling techniques, i.e. mirror or smoky fire for long range signaling and whistles and bright colored tarps for close range recognition.
- "3 of anything" is the international signal for help. Realize it will be awhile before someone is looking for you and not everyone knows what certain signals mean. Save one-time signal devices until the best opportunity to use them is evident.
- Use bright colored thermal blankets/tarps to form an "equals sign" or letters like V, T, H, L (such patterns don't form naturally). Fold or cut thermal blankets/tarps in half if needed and anchor well (could be blown away in high winds, and flying objects are hazardous to helicopters landing nearby). Can use logs/pine boughs on snow to form the symbols or letters.
- In winter, you can stomp SOS or HELP letters in snow but they should to be filled in with dark colored materials like branches/logs/rocks to make them more visible to searchers. Letters on sloping terrain can be seen from greater distances. In summer, make letters from materials that contrast with the ground such as brown logs on green meadow grass.
- Mark snow shelters with bright colored flagging material.
- When using a signal fire, don't cover the fire completely with pine boughs. Leave

a quarter "pie wedge" uncovered so air can flow in and under the boughs causing the heat and smoke to rise.

- Have signal items handy – bright colored tarps, green branches for smoke, mirrors, whistles, flares, etc. so if rescuers pass nearby you can immediately signal them.

Signal Mirrors:

- Manufactured types – specifically made mirrors with a clear glass center area and embedded mesh wire. Instructions for using the mirror are printed on the back of it.
- Techniques for using special mirrors:
    - Angle the mirror so a sun spot appears on the palm of your hand. Move the mirror to your eye while keeping the sun spot on your palm.
    - Slightly rotate the mirror until you see a small image of the sun in the center mesh area of the mirror. You will use it as a "sighting device."
    - Raise your head and mirror together while keeping the "sun image" in the mesh area.
    - Turn head and mirror simultaneously to "sight" where you want the sun's reflection to go. The sun's reflection is beamed wherever you position the small sun image.
- Field expedient methods for using glass or metal mirrors (CDs and credit cards don't work very well):
    - Method 1--Extend your arm full length with fingers together and pointed upward with the back of your hand toward you.
    - Hold mirror just below one eye and adjust until sunlight appears on your fingertips. You should be able to barely sight over the top of the mirror with your eye.
    - Flicker sunlight on your fingertips while positioning what you want to sight to at the top of your fingers. Your eye, mirror and hand must be aligned in a straight row for this method to work otherwise the reflected light will beam out at a left or right angle.
    - Method 2--(Good for signaling aircraft and moving vehicles.) Extend your arm full length and hold up two fingers in a "V" fashion with the back of the hand toward you.
    - Hold mirror just below one eye and adjust until sunlight appears at the base of the V.
    - Position a helicopter/low flying plane or vehicle between the first finger joints up from the bottom of the V and flicker your mirror while maintaining the object between the joints you track its movement. Turn

your upper body and arm simultaneously to keep your eye, mirror and V'd fingers in a straight line with the object.

- You can sometimes use a signal mirror on hazy or thin cloud days but results vary with conditions.
- CDs and credit cards don't work well, they diffuse the light.

XI. TRUTHS OF SURVIVAL

- Average survival situation is less than 72 hours if someone knows where you went and when you're overdue.
- Stay put. You can be found easier and quicker. You might move to areas already searched by rescue thus prolonging the process. Hiking out cross country at night or in deep snow is exhausting and can become deadly unless well-equipped and experienced.
- Water is important, food isn't but you will tire easily without nutrition. Essential to stay hydrated. Can warm the body by heating water to make a hot beverage or hot water bottle. Get rid of urine – your body will waste valuable core heat trying to keep it warm (but consider using it for a hot water bottle).
- Carry purification tablets, filter devices or metal containers to purify water or melt ice/snow. If water is reasonably clean but can't be purified, drink it anyway, see a doctor later about giardia.
- Water rationing - If limited supply, drink one or two mouthfuls periodically, body can process it more efficiently. Space out drinking intervals based on supply and situation. Excess consumption wastes water. Leader may need to keep tight control on rationing process.
- Eating snow can kill you by inducing hypothermia if not active but okay to consume small amounts when very active, i.e. while building shelter but not when stationary in shelter. Better to melt a small piece of ice in your mouth rather than handfuls of snow. Best solution is to use a metal container to melt snow via a fire or heat source.
- Food rationing - Like water, your body processes small amounts more efficiently. Space out food intake for periodic energy boosts and psychological uplift.
- Don't waste time hunting animals, very limited chances of finding game and the process can burn up more energy than gained. Your body might reject the food or the animal could be diseased. Might attract predators.
- Don't burn 3 fires at night unless children are involved. Rescuers generally search during daylight hours when visibility is better and for safety reasons.
- If you have a problem person, try to determine reason. Assign them simple tasks with a good partner and try to rationally persuade them to adjust. If totally resistant, use verbal force to order them to follow group rules. If all fails, leave

them to their own devices but be prepared to defend against irrational actions.

- Face reality, approach problems with a determination to succeed, work as a team, accept and bypass overwhelming obstacles, and keep up a good attitude. Goal is to survive however possible.

Think Positive – Be Positive!