

Wilderness Survival Skills



Class Notes

Introduction

Goal of this class - To give you a **FOUNDATION** of Wilderness Survival. So you will:

- Understand what to do in a survival situation, and in what order.
- Understand of each priority in a Wilderness Survival Situation
- Be able to build a **COMPLETE** and organized survival kit with contents you are familiar with, comfortable with and know how to use.
- Understand how knowledge, gear and skills work together.

Each Topic covered could be a separate class itself, lasting days or even weeks.

This condensed program will lay the groundwork and certainly give you enough knowledge to survive an unplanned overnight in nature.

This class is about sharing knowledge, different experiences provide us all with different knowledge and skills. Your knowledge and skills may be different than mine, so please share anything you think may benefit the group.

The Origin of this Program

Pages and Pages of Survival Kit ideas with no foundation - There had to be a better way!

Why Learn Wilderness Survival?

Because your “mindset ” can be the difference between being a “rescue” or being a “recovery” in a wilderness survival situation.

Knowing what to do in a wilderness survival situation can help you overcome fear and panic - ***Fear and panic are killers, they don't allow you to think clearly. You have to minimize fear to think clearly. Walking around while in a panic can lead to serious injury!***

- Some causes of Fear and Panic: *Being alone / Darkness / Animals / Suffering / Death*
- Control Fears: Recognize and admit your situation - Know that a positive attitude and your survival knowledge, skills and gear will get you through this situation.
- Keeping yourself busy and your mind occupied greatly reduces fear.

You should learn Wilderness Survival and avoid unnecessary risks. Why?

Every time Search & Rescue go out on a rescue or recovery it puts their lives at risk!

Question?

In a survival situation, what is the lightest thing you can carry with you that will give you the greatest odds of survival?

What circumstance(s) could get you into a survival situation?

- Nationally - The top reasons SAR is called out (not in any order)
 - 1) Trips
 - 2) Falls
 - 3) Sprained Ankle
 - 4) Lost Hiker
 - 5) Fatigue/ Physical Condition
 - 6) Weather (Heat)
 - 7) Gastro Intestinal Issues
 - 8) Drowning
 - Sometimes a wilderness survival situation is simply caused by a single item as above, other times it can be a combination of things that cause a survival situation.
 - 93% of people are rescued within 24 hours and a total of 95% are rescued within 3 days.
- Note:** Search and Rescue recommends staying put, if safe. It can take them much longer to find you if are continually moving your location.
- Local - **WASHINGTON COUNTY** Search and Rescue Information:
 - 150 to 170 Calls per year:
 - 50 are Heat Related, with 2-4 Heat Deaths Per Year
 - 20% are people stuck on hillsides that can't get down or back up

The biggest killers in the wilderness:

- Drowning
- Catastrophic Falls
- Exposure (inability to regulate your body temperature) Hypothermia or Hyperthermia

Hiking is actually more dangerous than backpacking because when backpacking you are carrying items to help thermoregulate as well as water filtration and food. Hikers sometimes go without these items and can get into trouble.

Primitive Skills Vs. Modern Methods for Wilderness Survival

- Primitive Skills

- Requires knowledge and practice that will allow you to live off the land.
- Can become a hobby or even a lifestyle for some people.
- Requires a great degree of knowledge and practice of the skills, some being:
 - Fire by Friction.
 - Construction of primitive shelters.
 - Tracking & trapping methods, and hunting with primitive weapons.
 - Uses of natural resources (plants and such) for food, medicine and utility.

Note: Just because you know primitive skills does not mean you should depend on them. Modern methods and gear, greatly improve your chances of survival.

- Modern Wilderness Survival - **OUR PRIMARY FOCUS!**

- Basic knowledge and minimal practice needed, using modern gear that can be purchased at most outdoor stores to address your priorities in a survival situation. Knowing the order of the priorities of survival.
- This is for the average hiker / backpacker / birder / naturalist that wants to learn to survive if lost or injured on a wilderness outing.
- This knowledge you gain could save your life in a wilderness survival situation!

My approach to teaching Wilderness Survival:

Survival Gear Lists

Vs

Concepts

(in this case “the Priorities of Survival”)

will lead to proper gear selection for you based on your level of skill and knowledge

If you give a man a fire.....

Trip Preparation

- Be Prepared (Scout Motto)
 - **Tell someone where you are going and when you plan to return.**
 - When can that system fail?
 - Clothing Selection (first line of defense against the elements):
 - Know how to use the “layering” system.
 - Cotton doesn’t kill....Stupidity kills.
 - Gear Selection (*all gear should be tested out prior to your trip*)
 - *If you can, buy 2, one to practice with and one for your kit.*
 - Know the area (familiarize yourself with the map of the area)
 - Route Plan (know the terrain and any possible hazards)
 - Forecasted weather for your trip
 - Resources - Water / Plants / Animals

The Actual Trip

- Pay Attention to:
 - Weather Changes / Terrain / Hazards / Landmarks / Plants / Animals
 - Look back on occasion to see what the trail will look like on the return trip

If you think you are LOST

S•T•O•P

- Sit Down - Don’t keep walking (because you can’t walk in a straight line)
Physically stop, sit down and let yourself calm down. Walking around in a panic can lead to injuries. Remember about panic and fears being killers.
(eat a snack, breathe deeply, try to relax)
- Think - Are there any immediate dangers? Life threatening injuries?
Once calm, you may be able to remember your route and how to get back.
Visualize your journey, navigation decisions and landmarks you have passed.
- Observe - Your surroundings and relate them to your map. You may notice a feature you recognize and then know how to get back.
- Plan - What are your options? What do you have with you, what natural resources are available to you.
Should you use navigation techniques to continue on, or backtrack to a known location, or should you make yourself comfortable and wait for rescue.
What are the priorities in a Wilderness Survival Situation?

- What are the priorities of survival? Students try to place cards in the correct order.

Priorities in a Wilderness Survival Situation

What are “The rule of 3’s”

The Rule of 3’s state: You can live.....

You can live.....

3-Seconds without “Hope”

3-Minutes without “Air” (Bodily Function - Blood Loss - Airway compromise)

3-Hours without “Shelter” (Thermoregulation)

3-Days without “Water” (This priority will move up in a Desert Survival Situation)

3-Weeks without “Food”

- My additional priorities (what I always felt was missing from this system) are in green
 - 1) PMA (positive Mental Attitude)
 - 2) Safety & First Aid
 - 3) Thermoregulation (shelter, fire (warmth), shade) (keeping your core temperature at 98.6°)
 - 4) Signaling & Communication (get signals ready so you can signal to rescue personnel)
 - 5) Sleep (sleep deprivation can greatly affect decision making abilities) an often overlooked priority
 - 6) Water (in desert environment this may be a higher priority) (3 days without water is possible)
 - 7) Navigation (If no one is searching for you, it may be time to try to navigate out of your situation)
 - 8) Food (a low priority) (3 weeks without food is not pleasant but possible)

Note: Our environments change, however our needs don’t - the priorities are the same in all environments, although the approach to addressing the priorities may be different, shelter for example..Jungle (raised bed) / Arctic (snow cave)

Your Survival Kit should be built based on the priorities listed above

- Basing your survival kit on the priorities listed above is a kit based on knowledge rather than lists. There are thousands of lists and several systems that have been created to facilitate the building of a survival kit. Using the “Priorities of Survival” (rule of 3’s + 3) will assure a complete kit with components you are familiar with as opposed to working off a list created by someone else.
- Your pack should not only include your survival kit but also include items from “The 10 Essentials” which are a list of items you should always have with you on a hike or backpack. The 10 Essentials were originally created in the 1930’s and formalized in the 1974 3rd edition of Mountaineering “The Freedom of the Hills”

More on “the 10 essentials” later.....

Priority #1

3 Seconds without “Hope” PMA - Positive Mental Attitude

- The correct mindset can be the difference between being a “rescue” vs. becoming a “recovery”. Having a positive mental attitude is why some people, with absolutely no survival training, have lasted for several days in a survival situation and have been successfully rescued. On the other hand, while we have no definite way to know, some that have perished, should have made it through the situation, but did not. This could have been due to their mindset. Possibly, they did not have the positive attitude and hope needed to get them through the situation.....they just gave up!
- A survey of over 120 N&A applicants found they listed “PMA” as the #1 priority in a survival situation.
- Carry what you need to give you the hope to get through your situation.
 - The confidence that you have the knowledge to get through this.
 - Determination and will to get through the situation.
 - Visual Aids
 - Family photo
 - Bible verses
 - Survival information cards

Priority #2

3 Minutes without “Air” Bodily Functions - First Aid & Safety

- In Wilderness First Aid, we use the MARCH Algorithm to assess life threats:
 - M - Massive Hemorrhage (control life threatening bleeding)
 - A - Airway (make sure the victim has a patent airway - no blockages or swelling)
 - R - Respiratory (assist with respirations if needed)
 - C - Circulation (CPR if the victim is in cardiac arrest)
 - H - Hike out / Helicopter rescue / Hypothermia (control body temperature for shock victims)
- Why take a Wilderness First Aid Course? - Because Wilderness First Aid differs from Urban First Aid. You can't call 911 when you are days from help.
- Things you may need to do in the Wilderness
(that are not even done by urban first responders)
These are a few of the things taught in a “Quality” Wilderness First Aid class:
 - Put Dislocations back into place
 - Spinal Assessments - Can the victim walk out?
 - Infections - Need to be addressed if you are days away from help.
 - And More!
- What are the signs and symptoms of conditions you should really be aware of?
(Things like burns are visually seen, the items below, you need to be able to access)
 - 1) Hypothermia
 - 2) Hyperthermia
 - 3) Dehydration
 - 4) Hyponatremia
 - 5) Heart Attack / Cardiac Arrest (there is a difference)
 - 6) Shock
 - 7) HAPE (if going to altitude)
 - 8) HACE (if going to altitude)

Priority #2

3 Hours without “Shelter” Thermoregulation Keeping your body core at 98.6° Shelter & Fire

Thermoregulation Overview:

- With ambient temperatures roughly around 75° to 85°, nothing is needed to regulate body temperature. Outside this range, additional steps are needed to warm or cool our bodies such as clothing, shelter, fire and shade in order to avoid:
 - **Hypothermia** (too cold.....body core temperature (below 95°)
 - **Hyperthermia** (too hot.....body core temperature (above 104°)

Keeping your body core temperature at 98.6°. If your body temperature is much higher or lower for an extended period of time it could kill you. Exposure is the #1 Killer in Wilderness Survival Situations.

It is easier to maintain than raise or lower body core temperature!

Thermoregulation Overview Continued

- **Hypothermia or Hyperthermia can have an Acute or Chronic onset.**
 - **Acute** - very fast onset.
 - a) **Hypothermia** (example - Falling through ice or snow)
 - b) **Hyperthermia** (example - Overactive or overdressed on a very hot day with too much time spent in direct sun)
 - **Chronic** - Slow onset over time to the point where your body can't regulate itself - can be hard to notice a slow onset.
 - a) **Hypothermia** (example - slow fall in body temperature due to exposure to cold and dampness)
 - b) **Hyperthermia** (example - slow rise in body temperature due to weather, temperatures not cooling off at night, no breeze, not enough shade)
- How do we deal with Hypothermia and Hyperthermia
 - 1) Shelter (including shading-up on hot, sunny days).
 - 2) Fire (in addition to shelter for Hypothermia)
 - a) sometimes due to weather and location, fire may not be an option.

Hypothermia:

Heat Loss Mechanisms

- How is heat lost from your body and what can you do about it?
 - **Conduction** - Direct transfer of heat from a warmer object to a cooler object.
Heat travels from hot to cold (examples: touching a hot pot on the stove, the heat travels from the pot to your cooler hand. Sitting on a cool rock, the heat travels from your warm body to the cooler rock and you feel yourself getting cold.
 - Desert - Your cooler body is absorbing heat from the ambient warmer air
Your temperature is lower than your surroundings so **you** absorb the heat!
 - Arctic - You are warmer than the ambient cooler air. The colder environment is absorbing your body heat so **you** get cold!
- *no matter what kind of shelter you create or use, in cold environments getting yourself insulated from the cold ground is essential otherwise conduction will suck away your body heat.**
- Convection - Movement of cooler air displacing the warm air next to your skin.
- Radiation - Radiative heat loss from your body. Electromagnetic waves from the body to cooler surrounding surfaces
- Evaporation - Sweat changes to a vapor, your body uses up heat to make this change.
- Respiration - Warm moist air in our lungs exchanges with the cooler dryer outside air.
- What are the signs of “Hypothermia”? (Blood is leaving your extremities to your core)
 - Shivering is your body’s effort to generate heat (early stages).
 - The “Umables” (Fumbles - loss of fine motor skills, Stumbles - walking is not normal, Mumbles - slurred speech, Grumbles - “I don’t care” attitude)
 - Slurred speech, fatigue, muscle weakness (later stages).
- Test for “Hypothermia”
 - 1) Touch your thumb to each finger on your hand individually.
 - 2) Walk a straight line.
- Treatment for “Hypothermia”
 - 1) Warm your body using.....Shelter and Especially Fire (if safe to do so)!
 - 2) Get out of any wet clothing - Replace with dry clothing
 - 3) Re-warm in a sleeping bag (with another person if necessary)
 - 4) Warm Fluids if the person is able to drink

IMPORTANT - Long before you die of hypothermia, your body will start taking blood from your extremities to keep your core warm, making fine motor control difficult. This will make it difficult if not impossible to do simple things like build your shelter or build a fire. So, in a sense, hypothermia will kill you long before you die since you will not be able to help yourself if you are alone. Forget about things like making natural cordage if you don't have fine motor control!

Heat Related Issues

DEHYDRATION:

- Impairs the body's ability to regulate Core Temperature, so it makes Heat Illness more likely!
- You lose the ability to sweat effectively. Sweat is the body's cooling mechanism.
- Blood volume is lower (less fluid in the body).
So, your heart has to work harder to pump blood – Increase in HR
- Vital organs (brain, heart & lungs) compete with muscles for oxygen rich blood.
Muscles lose out, which can cause muscle fatigue.
- Less blood to the brain causes dizziness.

Indications of **DEHYDRATION:**

-Thirst:

Is triggered by an increase of blood concentration (lower volume).
There is a "Lag Time", so thirst is not always reliable!

-Urine Color:

A better indicator, however, still not 100% reliable.....
There is a "Lag Time"
Certain medications, vitamins and supplements can throw off the color.
Urine should be a very light yellow, not dark, not clear.

-How to encourage Hydration:

Cold Beverages / Flavored Beverages Hyponatremia / Salty Snacks.

-During the Activity:

Stay Hydrated!

-Do not "Chug" water directly before activity:

Overdrinking:

Stimulates Urine Output

Can cause Abdominal Pain

Can cause Hyponatremia (low blood sodium)

Heat Illnesses (Hyperthermia)

- How is body heat gained?
 - Vigorous activity in warm to hot weather.
 - Overdressing in hot weather.
- Slow rise in body temperature from being in hot weather.

• **Heat Cramps**

- Heat Cramps: (muscle cramps, normally in the abdomen and legs)
 - Usually due to electrolyte loss through sweating and not replenishing fluids and electrolytes during the activity.
-
- Treatment for Heat Cramps:
 - Move to a cooler place
 - Drink fluids with electrolytes
 - Stretching and Massaging the affected muscles

Once symptoms have resolved, you are good to continue the activity.

• **Heat Syncope (Fainting)**

- Blood pooling in legs from prolonged standing (less blood in the brain)
 - Shunting of blood to the skin to aid in cooling the body (less blood in the brain)
-
- Treatment for Heat Syncope:
 - Move to a cooler place
 - Lay the person flat with legs elevated
 - Cool with misting water or wet, cool towels
 - Re-Hydrate once the person is conscious

This should be a very short fainting spell, seek medical attention if otherwise.
Elderly persons should be evaluated by a medical professional

Heat Illnesses (Continued)

- **Heat Exhaustion** (core temperatures up to 104°)

- **Signs and Symptoms:**

- Rapid, weak pulse
- Dizziness
- Headache
- Nausea

- **Treatment:**

- Move to a cooler place out of the sun
- Remove excessive clothing
- Cool the person with cold compresses or ice packs (sides of neck, armpits, groin)

- **Heat Stroke** (A Medical Emergency!)

(This person needs Medical Attention – Evacuate!)

- **Signs and Symptoms:**

- Confusion (Altered Mental Status)
- Weakness
- Dizziness
- Headache
- Unconscious
- Seizures
- Dry or WET skin (Activity induced Heat Stroke will often see moist skin)

- **Treatment:**

- Move to a cooler place out of the sun
- Remove excessive clothing
- Supervised Cold Water immersion up to the shoulders
- Cold, Wet sheets (if unable to do water immersion)
- Apply Cold Water (if unable to do water immersion)
- Fluids, if awake and able to swallow (this is a minimal help)

Fire - Modern Methods

- Fire Safety.
 - Weather conditions (strong winds)
 - Fire containment (fire ring)
 - Never leave a fire unattended
 - Know how to properly put out a fire
- Fire Prep
 - Ember / Spark based fire starting vs. Open flame fire starting
 - Ember & Spark based fire making will need a Tinder Bundle
 - Tinder - Natural or Man Made (at least 2x what you think you need)
 - Base, allowing oxygen under and into the fire
 - Kindling Size Steps- Pencil Lead / Pencil / Thumb (at least 2x what you think)
 - Fuel - Wrist size and larger
 - Natural materials - Fatwood / Birch Bark
 - Man made materials - PJ Cotton Balls / Commercially made fire starters
- How to know if the (dead & down) branches are good for fire making.
 - You will hear and feel a good “snap” when you break them.
 - Try to collect from lower dead branches that are still attached.
- Fire Lays
 - Tipi
 - Log Cabin
 - Simply lay sticks from “Pencil Lead” thickness up to “Wrist” thickness
- Be sure to have 3 methods of making fire on you or in your pack
- Types of Fire Making:
 - Solar - Fresnel Lens / Reflector
 - Electrical - Battery & Steel Wool
 - Open Flame
 - Matches*
 - Lighters*
 - Spark Based
 - Firesteel*
 - Flint & Steel
 - Friction - Hand Drill or Bow & Drill
 - Chemical - Potassium Permanganate & Glycerin / Chlorine & Brake Fluid
 - Compression - Fire Piston

*My preferred emergency fire making items to carry

Shelter - Modern Methods

Shelter regulates the “Flow” (Heat Transfer) between you and the environment.

- **Clothing** - *It's your first line of defense* - Dead air space - Close up collars and cuffs so warmed air (warmed by your body) does not escape (bellowing effect). Cover exposed skin, especially your head and insulate yourself from the ground. Learn how to properly layer your clothing for outdoor activities.
- Shelter Question - Ask yourself these questions prior to making a shelter.
 - 1) Do you need to warm up or do you need to cool down
 - 2) What resources are available
- **Personal Emergency Shelters** (on body shelters)
 - Emergency Mylar Blanket (can also be used as emergency sunglasses)
You lose the use of your hands because you have to hold it in place.
 - SOL Emergency Mylar Blanket (a tougher version of the basic mylar blanket)
 - Emergency Bivy (good if you are just laying down in one place)
 - Emergency Poncho by SOL (best choice because you now have use of your hands)
(combine with a large plastic bag as a bivy)
 - Trash Bag (55gal Contractor Bag) (as a poncho) Other uses of a trash bag:
 - Waterproof / Windproof Cover
 - Insulation below or above (Sleeping Pad or Blanket)
 - Used to transport leaves to build natural shelters
 - Fill with leaves for a debris hut plug (Door)
 - Water Carrier / Water Catcher
 - Snow Melter (Dark color bags)
 - Flotation device (Fill with air when crossing a body of water)
 - As a Tube Tent (two taped together)
 - As a tarp or lean-to (two taped together)
 - Gene Ward High-Density trash bags (Same uses as a 55gal Contractor Bag, however, being clear, you can use as a transpiration bag to make water)
 - Bread Rack Bags - Plastic bags used to cover bread bins in bakeries. (Larger and lighter than the contractor bags - same uses / also can be a tube tent).
I have gotten these for free from my local supermarket.
 - Military Poncho (is it your personal cover or emergency shelter cover?)

Shelter Continued

- **Shelters for Cover** - 1st day, get your basic shelter together, then day 2 and forward, continue to improve on your shelter.
 - Trash Bags (55gal Contractor Bag) - Tape two together as a tarp or lean-too
 - Gene Ward High-Density trash Bag) - Same uses as the trash bag above.
 - Bread Rack Bags - Same uses as the trash bag above but larger. Also as a tube tent.
 - Painters Tarp Shelter - “A” Frame tent or Lean-to.
 - Grabber Space Blanket ...Several Set-up methods:
 - Cold weather Set-up with a fire (lean-to with an awning) (ridgeline)
 - Cold weather Set-up no fire (“A” frame) (ridgeline)
 - Hot weather Set-up (foil side up) (ridgeline)
 - Plow Style Set-up w/tree (no ridgeline needed)
 - Lean-to using toggles on the ridge line
 - Several other setup’s
 - Military Poncho Shelter (set up as a tarp using some of the above methods)
 - SOL Emergency Shelter - Same as Grabber but show with “toggles” used to attach shelter to ridge-line
 - 10x10 Free Standing Tarp (W/Hiking pole)
 - Can be used in the same configurations as the Grabber space blanket tarp.
 - Modify so tarp ends can be used as doors
 - Can be used in the “plow” configuration if there are strong winds.
 - Second ridge line through tabs for wind protection
 - End tabs attached to ridge line with sticks by pulling ridge line through tabs
 - Free standing setup with trekking pole
 - Many configurations limited only by your imagination.
 - Bread Rack Bag - Use as a Tube Tent w/ridgeline and two additional side lines.
 - Super Shelter
 - Natural Shelters
 - Rock overhangs, large downed trees, caves and alike.
 - Debris Shelter - Can take several hours to build
 - Raised Shelters - More appropriate in the jungle
 - Cold Weather Shelters (Igloo, Snow Cave, Quinzee, Tree Pit)
- **Squirrel Up** - Wiggle into a leaf/debris pile, only your face sticking out to breathe

Shelter Continued

• **Shelter & Shelter Location Concerns:**

- Insulate yourself from the cold ground (sleeping pad / bag filled with leaf litter)
- Avoid: widow makers / game trails / dry creek beds / potential flood areas / windy peaks / cold valley floors / tops of hills / valleys / dead trees / windward side of a hill / below a rocky outcrop / areas with fresh animal sign.
- Look for: flat ground / windward side of a valley / Leeward side of woodland / 50-100 yards away from water / Good drainage.
- A south facing shelter will maximize your sun exposure and keep you warmer while a north facing exposure will minimize sun exposure and keep you cooler.
- **Try not to move your camp!** - Often times SAR will find your first camp then a day or two later find your second camp, and so on...

You significantly improve your chances of faster rescue by not moving camps.

• **Additional Considerations:**

- In a very warm environment, laying directly on cooler ground may be beneficial in cooling off your body.
- Dead Air Space below you will help in cold environments by reducing “conductive” heat loss from your body to the ground.
- Open Air Space below you will help in warm environments by allowing air flow beneath your body transferring your body heat to the cooler environment and cooling your body.
- A small “snug” shelter will help keep you warmer / A spacious shelter will keep you cooler.
- If you are WARM and want to LOWER your core temperature then put your body in direct contact with something COOLER than you.
If you are COLD and want to RAISE your core temperature then put your body in direct contact with something that is WARMER than you are.
- If you are COLD and want to RAISE your core temperature, you need to block the air currents from reaching your body. Create “dead” air space of non-moving air.
If you are WARM and want to LOWER your core temperature you need to maximize your exposure to moving air currents.
- Heat waves want to travel away from your body off into space. To stay warmer, create a barrier that will block their escape and reflect them back to you. To stay cooler, remove barriers and let the radiation escape to space.

Shelter - Attachments & Knots used

Knots used in shelter creation:

- First attachment of ridgeline to tree:
 - Siberian Hitch
 - Two Half Hitches
 - Loop in end of cord (pull entire line through)
 - Loop in end of cord (pull a bite through, secure with a “Y” stick)
 - Bowline around tree
- Attach the working end to the other tree
 - Modified Truckers Hitch
 - Taut Tarp Hitch
- Tie out lines (at tarp)
 - Adjustable Grip Hitch
 - Taut Line Hitch
 - Farrimond Hitch
- Tie out lines to a tarp with no tie-outs
 - Slip Knot (with a button)
 - Larks Head (with a button)
 - Adjustable Grip Hitch or Taut Line Hitch (with a button)
 - Sheet Bend
- Peg end of tie-out cord
 - Adjustable Grip Hitch or Taut Line Hitch
 - Clove Hitch (around a stick as a tie-out anchor)

Carving tent stakes out of branches:

- Carve an “off center” point for “pithy” branches to avoid tip collapse.
- Fire harden if time permits
- Carve out a notch to help “catch” the cord

Types of cordage used:

- 550 / Paracord is very common but has some stretch (harder to get a taught ridgeline)
- Utility cord 3mm
- 2.5mm or 3mm Reflective cordage (from Lawson Equipment) (my personal choice)
- Bank Line
- Masons Line

Signaling

Not part of the Rule of 3's

This priority is best approached parallel to the Shelter / Thermoregulation priority.

Once you have addressed the critical First Aid issues. Be ready to signal for help as you work on your shelter and fire.

Signaling for Rescue

- Types of Signaling
 - Audio
 - Visual
 - Electronic
- Universal Distress
 - SOS - 3 blasts on a whistle - (SAR will respond with 2-Blasts)
 - a) Whistle should be a “Plastic / Pealess” type
 - Things arranged in a Triangle
 - 3 of anything - 3 fires in a row
- Ground to Air (a whistle won’t work)

Who are we signaling to - Small airplanes and helicopters (not commercial aircraft)

 - Signal Mirror (Hands On)
 - Signal mirrors with “Retro-Reflective” grids are recommended as the most accurate for signaling for rescue. A mesh screen coated with spherical beads work like a street sign that reflects the light from your car back toward you.
 - You see a glow (a representation of the sun) on the grid - That’s your aiming indicator.
 - Flare
 - Smoke Grenade
 - 3-Fires arranged in a triangle or in a row
 - Signal fire (works ground to ground as well)
 - Burn rubber in a snowy white environment to create black smoke
 - Burn leaves in a dark wooded environment to create white smoke
 - Uses of natural materials like rocks laid out in an arrow or triangle that does not look like part of the natural environment (Contrast)
 - Flashlight / Headlamp (one that blinks is best)
 - High-Visiblity Clothing
- Ground to Ground
 - Who are we signaling to - SAR / Hikers passing by.
 - Signal Mirrors
 - Whistles - (Man made / Aluminum Soda Can / Leaf / Grass / Acorn Cap)
 - Flagging Tape (can also be used as a “Breadcrumb” trail if you need to leave base)
 - Smoke Grenade
 - Flashlight / Headlamp (one that blinks is best)
 - High-Visiblity Clothing

CONTINUED

- Electronic (Besides the obvious cell phone)
 - PLB (Personal Locator Beacon) - Not the SPOT - It has proven not to be as reliable and is difficult to get customer service to end subscriptions and such. Some devices allow two way com (communication), while others are one way SOS only.
 - Spot - Globalstar - 48 Mini Satellites - Purchase device & Subscription (2-way com)
 - In Reach - Iridium - 77 Satellites - Purchase device & Subscription (2-way com)
 - Zoleo - Iridium - 77 Satellites - Purchase device & Subscription (2-way com)
 - ACR - Sarsat - 70 Satellites - Purchase device no subscription - (SOS only)

- Signaling to SAR aircraft in an open field - It could take several hours for “boots on the ground” rescue personnel to arrive - your shelter could be far from where you signaled to the aircraft. Leave a “Breadcrumb” trail so SAR can locate you.
 - Rock Cairns
 - Ground Markings that contrast with the ground surface
 - Flagging Tape (super lightweight and easy to put into a survival kit)

Additional Priority

Sleep

Not part of the Rule of 3's

- This priority is addressed via your “Thermoregulation” priority. While it may seem sleep is not a necessity in a wilderness survival situation, it can be vital. Sleep deprivation can cause you to make bad decisions. Not sleeping the first night may not be much of an issue, however two nights of sleep deprivation can start to cause issues that may make your attempt at survival much more difficult. Lack of sleep causes:
 - Confusion & Memory issues
 - Hallucinations
 - Headaches
 - Blood Pressure issues
 - Irritability
 - General bad decision making

Priority #4

3 Days without “Water”

**Less time in a very dry
or hot environment**

Water

- How much water should you carry? (Factors)
 - Time of year
 - Water availability on your route of travel
 - Your ability to carry the weight - water weighs 2.2 pounds per liter (which equals appx 34 ounces). A 3-liter water bladder weighs 6.6 pounds (excluding bladder)
- What types of water containers to carry?
 - A metal water bottle or metal cup allows you to boil water.
 - Inexpensive disposable water bottles usually can accommodate a “Sawyer” type filters, as well as allowing you to use the SODIS method (see below)
 - You can boil water with hot rocks in a yucca stalk. (you will need fire)
 - You can boil water in a plastic bag with hot rocks. (you will need fire)
- Things in the water that can make you sick and how to treat the water.
 - See the Back Country Water Treatment chart from the CDC
https://www.cdc.gov/healthywater/pdf/drinking/Backcountry_Water_Treatment-508.pdf
- Methods of water purification:
 - Water Filter vs. Water Purifier
 - Straw Types / Squeeze Types (sawyer / befree / grayl) / pump types
 - Chemical - (Iodine / Chlorine / Chlorine Dioxide) (Chlorine Dioxide is best)
 - Boiling
 - SODIS method - Using PET bottles (polyethylene terephthalate)
in direct sunlight for 6 hours which pasteurizes the water.
- Natural Sources of Water in an emergency.
 - Sea Water - Too much salt in the water, it can kill you, however if you are stranded at sea sip in very small amounts (no more than 32oz a day), it could possibly save your life, but you will not be healthy when rescued!
 - Sea Water - Distillation will make it safe to drink.
 - Snow / Ice / Rain.... Melt and filter before drinking. Pollutants are picked up from the air and should be filtered out if possible. Use your tarp to collect rain water.
 - Transpiration Still (clear plastic bag tied to a leafy tree branch).
 - Solar Still - Add Vegetation / Urine / Sea Water - Hard work with little return.
 - Morning Dew - Tie bandanas to your legs walk through safe vegetation (no poison Oak or other unsafe plants) then wring bandanas out into a bottle.

CONTINUED

- How to find water sources
 - Climb to a high spot and have a look around for water sources.
 - Notice possible bodies of water: Streams, Lakes, Rivers, Ice, Snow
 - Look for riparian trees and vegetation (the emerald green trees)
 - Go down hill - water flows down so you may find water by going down, however, it sometimes exits seeps out of rock crevices prior to flowing all the way down.
 - Watch the animals - most go to a water source at least daily.
Birds fly low when in route to a water source.
 - What other resources have you found when you have found a water source?
 - Plants - Edible & Medicinal plants / plants and trees to use for friction fire, shelter & weapons.
 - Animals - (animals can be a food source)
- Ration your sweat - In the desert, travel twilight & night. Shade up and rest during the heat of the day.
- Ration your water - Two schools of thought:
 - 1) Never ration water - it's better to have it in your body than in your backpack.
 - 2) Ration your water - Your body can only absorb appx .7 quart per hour so drinking more than that is just waste.

NOTE - Keep Membrane Type Filters from FREEZING!

Additional Priority

Navigation

Not part of the Rule of 3's

Emergency Navigation

- You may need to attempt to navigate your way out of your situation (assuming you are able to walk out), because:
 - You never told anyone where you were going and when you plan to return. OR
 - You got lost prior to your “overdue” date (if you did leave a plan with someone). OR
 - You changed your route prior to getting lost, so you are lost off the planned route you left with someone.
- This priority is best addressed after you have accomplished all the other priorities (with the exception of food). This will allow you to:
 - Have a shelter to return to if your first attempt to find your way out is not successful.
 - Have signaling methods in place to use as needed
 - Have a good supply of water with you
- You should have a compass and map (which you should know how to use) in your pack or survival kit. If not there are emergency & natural methods of navigation.
 - Shadow Stick Method - Shown earlier in the day
 - Natural Navigation: Spider Webs / Tree Roots / Using the Sun

Priority #5

3 Weeks without “Food”

A very low priority in a Wilderness Survival Situation

- Food is a very low priority in a wilderness survival situation
 - Carry extra food in your pack - Something you may not normally want to eat so you don't eat it, unless it's an emergency.
 - Chia seeds are a light weight power packed food.
 - Jerky (Beef or Turkey)
 - Pemmican - Has a long shelf life
 - Learn the edible plants in your area
- Hunting Methods (The knowledge and ability to produce these items in the field)
 - 1) Deadfall Traps
 - 2) Fishing (carry a small kit with line, sinkers and hooks)
 - 3) Rabbit stick
 - 4) Snares with wire or cordage
 - 5) Primitive Archery / Atlatl
 - 6) Other Primitive methods such as Bolo, Sling....etc

Survival Kits

- On a short day hike, your “survival” items can easily be carried, along with your other hiking gear, and the 10 essentials (covered later), in a small backpack.

Since it’s a small day-hike pack, there would be little reason that you would be separated from your pack.

- On backpacking trips, having a separate “survival” kit, that may also include some of the 10 essentials would be a good idea for those times when you venture away from your larger backpack. Heading away from camp for a walk or heading off trail to use the bathroom would be good examples of when you might not want to carry the larger backpack around.

NOTE: one person actually perished when going off trail to use the bathroom and became lost, not able to find their way back to the trail. A simple whistle to call for help could have possibly saved this person.

Another example might be a fast moving wildfire where you want your survival gear but may need to move quickly and don’t want a heavy pack on your back.

Putting a small survival kit into a dry bag is ideal for this type of situation where you want a separate survival kit.

CONTINUED

Survival Kit Ideas (incorporated into a day hike pack)

Follow the “Rule of 3’s and put the following items in your pack:

- Hope (PMA Positive Mental Attitude)

- ☐ Family Photo, Scripture Verse, etc

- Air (Bodily Function / First Aid)

- ☐ First Aid Kit (deal with life-threatening injuries first)
- ☐ 3 Days of Rx Medications (72hrs is standard rescue)

- Shelter (Thermoregulation: Fire/Shelter)

- ☐ Tarp or Poncho Tarp & Line Kit (is rain expected?)
- ☐ Reflective Poncho
- ☐ 60 Gallon High-Density Bags (2) (Gene Ward Bags)
- ☐ SOL Emergency Bivy
- ☐ Extra Cordage
- ☐ Lighter
- ☐ Firesteel
- ☐ PJ Cotton Balls or other Fire Starter Material
- ☐ Knife (processing wood for fires and other tasks)

- Signaling* (Audio, Visual, Electronic)

- ☐ Signal Mirror (on a lanyard)
- ☐ Whistle (attached to signal mirror lanyard)
- ☐ Button Compass (attached to signal mirror lanyard)
- ☐ PLB (A Personal Locator Beacon)
- ☐ Flagging Tape

- Water

- ☐ Water Containers (at least one single wall metal)
- ☐ Water Filtration (not a straw type)

- Navigation*

- ☐ Topo Map
- ☐ Compass

- Food

- ☐ Trail Snacks
- ☐ Emergency Fishing & Trapping Gear (optional)

- Sleep*

- ☐ Your shelter and fire items, along with your knowledge should facilitate this priority.

* Not part of the original “Rule of 3’s”

- Misc (Items you may choose to carry)

- ☐ Multi Tool or Swiss Army Knife
- ☐ Tyvek Piece (small ground cloth)
- ☐ Small Insulated Sit Pad
- ☐ Notepad & Pen or Pencil
- ☐ Bandana
- ☐ Reading Glasses / Spare Glasses
- ☐ Hygiene & Toilet Kit (TP, trowel, hand sanitizer, insect repellent)
- ☐ Small Sewing/Repair Kit
- ☐ Buff (or any additional clothing to be carried)

- The 10 Essentials

(Developed in the 1930’s by the

“Mountaineers”, these items should be with you on every outing)

(Note - The items **highlighted** are already covered in our survival Kit & Misc items)

- ☐ **Navigation** (map, compass, GPS)
- ☐ Illumination (headlamp & extra batteries)*
- ☐ Sun Protection (sunglasses, sunscreen)*
- ☐ **First Aid Kit**
- ☐ **Knife, Repair Kit**
- ☐ **Fire** (lighter, matches, tinder)
- ☐ **Shelter**
- ☐ **Extra Food**
- ☐ **Extra Water (and/or a way to filter water)**
- ☐ **Extra Clothing (to survive an unplanned overnight)**

*Not Survival “life or death” items.

The Rule of 3’s state:

You can live.....

3 seconds without hope

3 minutes without air

3 hours without shelter

3 days without water

3 weeks without food

3 months without companionship

All information: Keith Farrar, Nature Skills School
www.keithfarrar.com

Continuing Education

- Knots - Most useful outdoor knots
- Knives - Knife safety, knife use, types of knives, sharpening
- Fire Making Methods
- Shelter Building
- Wilderness First Aid
- Cordage from natural materials
- Plant uses for food, medicine and utility
- Map & Compass / Natural Navigation
- Primitive Skills - Shelter Construction / Friction Fire / Trapping
- Tracking