Wilderness Survival Skills

Student Notes

REV 021126

The Foundation

Introduction

• **Goal of this class - To give you a solid FOUNDATION of Wilderness Survival.**

>You will have an understanding of each priority in a Wilderness Survival Situation, how to address each priority and in what order.

>You will learn how to build a **COMPLETE** and organized survival kit with contents you are familiar with, comfortable with and will know how to use.

>You will understand knowledge, gear and the skills to use that gear work together.

•This class will give you a solid foundation of wilderness survival, however each topic we could be a separate class itself, lasting days or even weeks, there is always more to learn.

•My method of teaching is to empower you with the knowledge, then you decide what goes into your survival kit.

>You can give a man a fish and he eats for one day or you can teach a man to fish.

Why Learn Wilderness Survival?

•Because your "mind set " can be the difference between being a "rescue" or being a "recovery" in a wilderness survival situation.

•Question, what is the lightest thing you can take with you that will give you the greatest odds of survival (in a survival situation)? .....Knowledge

•Knowing what to do in a wilderness survival situation can help you minimize 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

>Controlling Fears: Recognize and admit your situation - Fall back on knowing that a positive attitude and your knowledge will get you through this situation.

>Keep yourself busy and keep your mind occupied.

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

•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.

Primitive Skills Vs. Modern Methods for Wilderness Survival

•Primitive Skills

>This requires knowledge and practice that will allow you to live off the land as natives did, and still do in some areas. Most of the time this involved people working together as a community.

>These skills can become a hobby or even a lifestyle for some people.

> The skills require a great degree of knowledge and practice, 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.
•Animal Processing / •Stone & Bone Tools / •Bow Making / •and more

•Modern Wilderness Survival - <u>OUR PRIMARY FOCUS!</u>

>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.

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

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 wells as water filtration and food. Hikers sometimes go without these items and can get into trouble.***

•A few notable wilderness survival recoveries / rescues.

>32yr old experienced hiker dies from exposure in New Hampshire.
>Grandfather and grandson die in Arizona during a hike.
>62yr old hiker lost for 9-days in the Sierra National Forest
>78yr old hiker lost for 3 days in Baxter State Park
>Parents die, son found alive in Arizona during a hike
>Body of a missing hiker found after 3 weeks in Yosemite.
>Jan / Feb 2016 Several deaths and rescues on Mt. Baldy.
>Each year in Yosemite, SAR responds to 250 incidents / rescues

•The average deaths in the wilderness per year:

Hypothermia - 699 / Bee - Wasp sting - 48 / Snake bite - 5 / Bear attack - 2.

Trip Preparation

•Be Prepared (Scout Motto)

>**Tell someone where you are going and when you plant to return.**

•When can that system fail?

>Clothing Selection (first line of defense against the elements)

•Know how to use the "layering" system.

•Cotten doesn't kill....Stupidity kills.

>Gear Selection (all gear should be tested out prior to your trip - know your gear!)

>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 get Lost

•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.

B) Address Priorities.....(have students put the priority cards in order)

Priorities in a Wilderness Survival Situation

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

1) PMA (positive Mental Attitude)

2) Safety & First Aid

3) Thermoregulation (shelter, fire (warmth), shade) (keeping your core temperature at 98.6º)

4) Signaling & Communication (get signals ready so you can signal to rescue personnel)*

5) Water (in desert environment this may be a higher priority) (3 days without water is possible)

6) Sleep (sleep deprivation can greatly affect decision making abilities) an often overlooked priority*

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)

*These priorities are not part of the "Rule of 3's, however they do fit into the priorities of survival

•***Think of the priorities like a pilot's checklist, for example if you are safe and don't need first aid, move on to the next priority, if you are in a tropical environment and don't need additional thermoregulation, move on to the next priority.***

•Why do we approach them in this order? The rule of 3's

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"

•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. More on kits later.

Priority #1

3 Seconds without “Hope”

PMA - Positive Mental Attitude

PMA

•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.

•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 the will to get through the situation.
>Visual Aids
- •Family photo (photo of your pet if you don’t like your family)
- •Bible verses
- •Survival information cards or bandana (memory joggers)

Priority #2

3 Minutes without “Air”

Bodily Function

First Aid & Safety

Wilderness First Aid (a brief discussion)
This is not a First Aid class.

•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 ariway - 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 resuce / 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 EMT's

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.
>Medical assessments - Can they hike out or do you need to call for rescue?

•What are the signs and symptoms of <u>conditions</u> you should really be aware of?
(Things like burns are visually seen, the items below, you need to be able to access)

>Hypothermia
>Hyperthermia
>Dehydration
>Hyponatremia
>Heart Attack / Cardiac Arrest (they are not the same thing)
>Shock
>HAPE (if going to altitude)
>HACE (if going to altitude)

•Some common myths in wilderness medicine:

>Scrape out a bee's stinger - No, you can actually pull it out without issue.
>Sweating stops in persons with Heat Stroke. No, this person can still be sweating. The only way to tell the difference between Heat Exhaustion and Heat Stroke is altered mental status appears in Heat Stroke.

Priority #3

3 Hours without “Shelter”

Thermoregulation
Keeping your body core at 98.6º

Shelter & Fire

Thermoregulation Overview:

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

•Hypothermia or Hyperthermia can have an Acute or Chronic onset.
>**Acute** - very fast onset.
a) **Hypo**thermia (example - Falling through ice or snow)
b) **Hyper**thermia (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) **Hypo**thermia (example - slow fall in body temperature due to exposure to cold and dampness)
b) **Hyper**thermia (example - slow rise in body temperature due to weather not cooling off at night, no breeze, not enough shade)

•How do we deal with Hypothermia and Hyperthermia
>Shelter (including shading-up on hot, sunny days).
>Fire (in addition to shelter for Hypothermia)*
*sometimes due to weather and location, fire may not be an option.

•Shelter Question - Ask yourself these questions prior to making a shelter.
>Do you need to warm up or do you need to cool down
?What resources are available

Keeping your body core temperature at 98.6º. 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!

What is Hypothermia?

Heat loss from you body, resulting in a body core temperature of 95º or less.

•How is heat lost from you body and what can you do about it?

1) **Conduction** - 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. Your warm body sitting on a cool rock, the heat travels from your warm body to the cooler rock and you feel yourself getting cold.
   a) Desert - Your cooler body is absorbing heat from the ambient warmer air
      Your temperature is lower than your surroundings so ***you*** absorb the heat!
   b) 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, getting yourself insulated from the cold ground is essential otherwise conduction will suck away your body heat.**

2) Convection - Movement of cooler air displacing the warm air next to your skin.
3) Radiation - Radiative heat loss from your body.
4) Evaporation - Sweat changes to a vapor, your body uses up heat to make this change.
5) 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.
>The "Umbles" (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, shivering (in early stages)

•Test for "Hypothermia"

>Touch your thumb to each finger on your hand individually.
>Walk a straight line.

•Treatment for "Hypothermia"

>Warm your body using.....Shelter and escpcially Fire (if safe to do so)!
>Get out of any wet clothing - Replace with dry clothing
>Re-warm in a sleeping bag (with another person if necessary)
>Warm Fluids if the person is able to drink

Thermoregulation Overview Continued

•**<u>IMPORTANT</u>** - 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 cordage if you don't have fine motor control!

What is Hyperthermia?

Your body core temperature is too hot (104º or more is critical)

•How is body heat gained.
>Vigorous activity in warm to hot weather.
>Overdressing in hot weather.

•Stages of Hyperthermia
>Heat Cramps (usually muscle cramps in abdomen and legs)
>Heat Syncope (fainting) Due to (1) blood pooling in the legs from prolonged standing causing less blood in the brain or (2) shunting of blood to the brain to aid in cooling.
>Heat Exhaustion (thirst, nausea, rapid pulse, cool & clammy skin)
>Heat Stroke* (Altered Mental Status, fainting, dry or moist skin / skin hot to the touch / flushed skin, rapid pulse to slow weak pulse)

* Heat Stroke is a MEDICAL EMERGENCY - Evacuate this person!

•Signs of "Hyperthermia"
>Hot sweaty skin
>Dizziness
>Nausea
>Headache
>Rapid Pulse
>Disorientation

•What can you do about Hyperthermia?.
>Get into shade (either natural or rig up a tarp shelter).
>Wet your shirt to provide evaporative cooling - a cotton shirt is ideal in this case!
>Cool wet towel or bandana around the neck, under arms and groin area.
>Immersion in a cool water source, up to the neck only (with help from others), this is critical for someone in Heat Stroke!

REMEMBER - This is not a first aid class, please take a class to really understand how to address the above emergencies!

Fire

•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
Have the students try some of the methods below.....
•Types of Fire Making:
>Solar - Fresnel Lens (you need fire more when the sun is not out)
>Electrical - Battery & Steel Wool
>Open Flame
•Matches (Stormproof Type)*
•Lighters*
>Spark Based
•Firesteel*
•Flint & Steel
>Friction - Hand Drill or Bow & Drill
>Chemical - Potassium Permanganate & Glycerin / Chlorine & Brake Fluid
>Compression - Fire Piston

*My preferred "modern" emergency fire making items to carry

Shelter

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

What do you want your shelter to do? Cool you off? Warm you up? Keep you dry?

•**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.

•**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 once 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 bivy (emergency bivy, contractor bag or bread bin bag)

>Trash Bag (55gal Contractor Bag) (as a poncho) (mention other uses below)

- •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-too (two taped together)

>Bread Rack Bags - Plastic bags used to cover bread bins in bakeries. (Larger and lighter but similar uses to contractor bags / also can used as a transpiration bag). Note: I have gotten these for free from my local supermarket.

>Military Poncho (is it your personal cover or emergency shelter cover?)

You should combine a few of the above to complete your personal shelter

Shelter Continued

•**<u>Shelters for Cover</u>** - 1st day, get your basic shelter together, then day 2 and forward, continue to improve on your shelter.

>Trash Bags (55gal Contractor Bag) -Mentioned above

>Bread Rack Bags - Mentioned above.

>Painters Tarp Shelter - "A" Frame tent or Lean-to.

>Grabber Space Blanket (Military Casualty 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.

>Natural Shelters like rock overhangs, downed trees, caves and such.

•**<u>Advanced Shelters for Cover</u>** -

>Debris Shelter - Can take several hours to build

>Raised Shelters - More appropriate in the jungle

>Cold Weather Shelters (Igloo, Snow Cave, Quinzee, Tree Pit)

>Super Shelter

•**<u>Worst case emergency shelter</u>** -

>Squirrel Up - Wiggle into a leaf/debris pile with only your face sticking out to breathe!

Shelter Continued

•**<u>Shelter & Shelter Location Concerns</u>:**

>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.**

•**<u>Additional Considerations</u>:**

>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 Continued

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 treee to create a taught ridgeline

- •Modified Truckers Hitch
- •Taut Tarp Hitch

>Tie out lines (at tarp)

- •Adjustable Grip Hitch
- •Taut Line Hitch

>Tie out lines to a tarp that has no grommets or tie-out loops:

- •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 "7" 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 from REI - used in set-up demonstrations)
>2mm or 3mm Reflective cordage (from Lawson Equipment) (my personal choice)
>Bank Line

Additional Priority

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

•Signaling can help Search & Rescue to find you.

In the book "Analysis of Lost Person Behavior" by William G Syrotuck, there is an interesting passage:

"A lost person capable of going 3 miles in any direction, creates a sheach pattern covering up to 28 square miles (πr^2). To cover an area this size thoroughly, would take 264 searchers searching for 12 days"

•The 3 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 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.

>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)

>Flare or Smoke Grenade (not often carried)

>The Pink Shirt

CONTINUED

•Ground to Ground - Who are we signaling to - SAR / Hikers passing by? Not Aircraft!

>Signal Mirrors

>Whistles

•Aluminum Soda Can

•Leaf Whistle / Acorn Cap Whistle

>Flagging Tape (can also be used as a "Breadcrumb" trail if you need to leave base)

>Flashlight / Headlamp (one that blinks is best)

>Flare or Smoke Grenade (again....not often carried)

>The Pink Shirt

•The "Pink" shirt.

Get one two sizes larger so it can go over your largest layer

Get a synthetic shirt so it can be used if you happen to be wearing cotton that is wet and the temperatures start to drop at night.

•Electronic - PLB's (Personal Locator Beacons)

Some devices allow two way communicatin, 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 needed - (SOS only)

•Electronic - Smartphones (Newer smartphones can be used for emergencies via satellite).

There are some disadvantages of a smartphone over an actual PLB

>Battery life on a smartphone is much less than a PLB

>Smartphones are not near as rugged or waterproof

>No "Breadcumb" trail for followers back home

>Smartphones are more directional and need to be pointed at a satellite

•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

Sleep

•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.

>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.

1) See the Back Country Water Treatment chart from the CDC
https://www.cdc.gov/healthywater/pdf/drinking/Backcountry_Water_Treatment-508.pdf

•How do we make water safe to drink:

>Disinfection - Kills (or deactivates) Bacteria, Viruses & Parasites

>Purification - Removes dissolved contaminants, chemicals, and microscopic viruses to a higher standard.

>Filtration* - Is for clarity, it removes Sediment and Dirt

*However, in our world of outdoor activities, what we call a water filter, not only filters for clarity, it disinfects as well. Although, most “water filters” do not remove viruses.

•Methods to make water safe to drink:

>Water Filter vs. Water Purifier

a) Straw Types / Squeeze Types (sawyer / befree / grayl) / pump types

>Chemical - (Iodine / Chlorine / Chlorine Dioxide) (Chlorine Dioxide is best)

>Boiling

>SODIS method - Using PET bottles in direct sunlight for 6 hours which pasteurizes the water. Often used in 3rd world countries.

CONTINUED

•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 non toxic leafy tree branch).

>Solar Still - Add Vegetation / Urine / Sea Water - Hard work with little return.

>Morning Dew - Tie bandannas to your legs walk through safe vegetation (no poison Oak or other unsafe plants) then wring bandannas out into a bottle.

•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 darker 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.

>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 bottle.
2) Ration your water - Your body can only absorb appx .7 quart per hour so drinking more than that is just waste.

•Additional Hydration Concerns and Information

>Never let “membrane” type water filters freeze. Freezing will destroy the membrane.

>**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 causing an increase in heart rate.
- •Vital organs (brain, heart & lungs) compete with muscles for oxygen rich blood. Muscles lose out, which will casue muscle fatigue.
- •Less blood to the brain causes dizziness.

>Indications of Dehydration:

- •Thirst - 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. Your urine color should be light yellow (not clear). Clear urine could indicate Hyponatremia (low blood sodium), in which case you need to furnish electrolytes to your body.

>How to encourage hydration:

- •Cold Beverages
- •Flavored Beverages (flavored electrolytes)
- •Salty Snacks

>During your outing....Stay Hydrated!

>Prior to your trip, DO NOT CHUG WATER - Over Drinking can cause:

- •A stimulation of urine output
- •Abdominal Pain
- •Hyponatremia (low blood sodium)

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 in a "lost" and able to walk out) for the following reasons:

>You never told anyone where you were going and when you plan to return.
>You got lost prior to your "overdue" date (if you did leave a plan with someone)
>You changed your route prior to getting lost, so you are lost off the planned route you left with someone.
>You do not have any electronic signaling devices (PLB / Smartphone).

•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 you 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 / Other Clues

(Optional Activity)

•It can be advantageous to know your pace count to determine the distance you may need to travel in an emergency situation.

>A pace count keeps track of the distance you have traveled.
>How many paces you take to cover a set distance (yards or meters)
>1760 yards=1 mile / 1600 Meters=1 Mile

Establishing your individual pace count:

1)Walk 100 meters (328 feet) by stepping off with your left foot, now every time right foot hits the ground = 1-Pace (establish your pace wearing the gear you would normally wear while hiking/backpacking). Do this at least a couple of times to get a more accurate average reading of your pace count.

2)Example - Flat Ground / Day Hike Gear - Pace was 63 first time and 65 second time - average pace is 64 per 100 meters - on flat ground with day hike gear.

3)Repeat the "establishing your individual pace count" count pace on an "uphill" and on a "downhill". Add your average paces for all three types of terrain and then divide by 3 to get an average of your pace in all terrains.

4)Use pace beads to keep track of your paces

Priority #5

3 Weeks without “Food”

A very low priority in a Wilderness Survival Situation

Food

•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

•Hunting Methods (The knowledge and ability to produce these items in the field)

>Deadfall Traps

>Fishing (carry a small kit with line, sinkers and hooks)

>Rabbit stick (a throwing stick)

>Snares with wire or cordage

>Primitive Archery / Atlatl

>Other Primitive methods such as Bolo, Sling....etc

•Survival Kits

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 and just take your survival kit.

Another example might be a fast moving wildfire where you want your survival gear but may need to run 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.

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.

CONTINUED

Survival Kits (continued)

•What are the 10 Essentials and how do they differ from a Survival Kit?
Note: It is the 10 "Essentials", not 10 Items, it's 10 categories of gear.

1) Navigation (Map & Compass)
2) Sun Protection (Sunglasses & Sunscreen)*
3) Insulation (Extra Clothing)
4) Illumination (Headlamp / Flashlight)*
5) First Aid Supplies
6) Fire (Waterproof Matches / Lighter / Candle)
7) Repair Kit (Knife / Multitool / Sewing)*
8) Hydration (Extra Water)
9) Nutrition (Extra Food)**
10) Emergency Shelter (Tube Tent / Tarp / Emergency Blanket / Garbage Bags)

NOTE: Some of the above items are already in our "Survival Kit"

* Not survival items -You won't die (in the short term) if you forget these items, however, these items do help in a survival situation.

** Food is not an immediate need (remember the rule of 3's)

•Once you understand the survival priorities, it's easy to put together a Kit.
Base your survival kit items on the priorities of survival then add some tools.

See the example kit on the next page.....

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Survival Pack Ideas (incoporated 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?)
❒ SOL Reflective Poncho
❒ 60 Gallon High-Density Bags (2) (Gene Ward Bags)
❒ SOL Emergency Bivy
❒ Extra Cordage
❒ Lighter / Firesteel / Stormproof Matches
❒ 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 has saved lives)
❒ Flagging Tape

• Water
❒ Water Containers (at least one single wall metal)
❒ Water Filter System

• Navigation*
❒ Topo Map
❒ Compass

• Food
❒ Trail Snacks (peanut butter packets)
❒ Emergency Fishing & Trapping Gear (optional)

• Sleep*
❒ Your shelter and fire items, along with your knowledge should faciliate this priority.

* Not part of the original "Rule of 3's"

• Misc (Items you may choose to carry)
❒ Multi Tool or Swiss Army Knife
❒ Headlamp or Flashlight
❒ 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 / sunscreen)
❒ Small Sewing/Repair Kit
❒ Beanie 7 Buff (+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

*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 inforamtion: Keith Farrar, Nature Skills School
www.natureskillsschool.com
Class Schedule: Christopher Nyerges
www.schoolofself-reliance.com