

## Building and Cooking on a Campfire. Art or Science

The small whisper of smoke rising from the evening fire dances in the intermittent breeze. Spring smells of cedar are mingled with the wafting aromas of a cobbler in the dutch oven. Although quiet by most definitions the nearby creek is occasionally drowned out by the sounds of insects coming alive in the dusk darkened trees and accented by the sound of a nearby whippoorwill. Lounging comfortably and gazing into the coals of the fire it is easy to forget you are not alone, until a camping buddy speaks.

Camping is, by my definition, in the forest and away from the civilized grid infrastructure. “No phone, no light no motorcars... it's as primitive as can be”. Cooking on a fire and sleeping under the stars. Has many rewards. Whether planning a backwoods outing or perhaps practicing for a forced evacuation from some as yet unnamed disaster. Being well fed around an evening campfire is strong incentive.

Imagine the hotels are full and evacuation routes are clogged. Everyone is hungry and it is time to feed the members in your group. Perhaps a campfire to improve moral and make a pot of coffee. Either way safe, proper and rewarding campfires do not just happen. Ignorance may be bliss but knowledge is strength.

During the writing of this article I began to realize there is much more to cooking on a campfire than I have realized. Having done so for so long I tend to take much for granted. It has become clear that campfire cooking is as much an art as it is a science.

My campfire cooking experience is mostly that of cooking on a wilderness or primitive campfire. Cooking over coals in my backyard grill is not fraught with the same challenges as that of a primitive fire, although I do have some experience cooking over briquettes in a grill. However my experience in cooking over a true campfire is quite extensive. Cooking over an open campfire does have quite a few built in and unexpected challenges. It is my desire that the sharing of my experience will be to your benefit. You may choose to camp and cook or you may be forced into it by an unforeseen event. Either way primitive fire cooking is much the same, in the wilderness, your backyard or the side of the road, the actual location matters little.

Once the day of backpacking is done and the campsite has been chosen. Perhaps a secluded spot in the woods with nearby water access from a quiet little mountain stream. There is ample firewood nearby and the underbrush is not overly dense. The site for the fire, kitchen and wood yard have been selected. Each member has placed their packs in their chosen location for their hooches or shelters. Next step, everybody pitches in to gather and pile firewood. It will be piled in a location just out of camp near the chosen location for the finished wood stack to be broken and sorted later.

Lighting and safely using a campfire begins long before the ignition process. First a suitable site must be selected. This is a site free of dangers and in a usable location. Once the site is selected the fire pit must be prepared. This will include the gathering of all firewood to be used. It is most helpful if everyone pitches in and gathers the wood. The fuel is brought near camp to the coarse wood yard. It can be processed later by breaking all limbs into usable lengths and sorting according to size and type, hardwood, softwood, and nearly but not quite rotten, small, medium to large. The best wood it to be used for cooking.



As you are gathering your firewood gather kindling as well. Find dry twigs no larger than a kitchen matchstick and about 8” to 12” long. These can be found at the tips of dead branches. Gather two bunches of this material as large as you can hold in your hand. This is the Ignition Bundle. Tie one bundle and store it away. Place the second bundle with the tinder for use in lighting the fire.

Ignition Bundle

The flammables used in the fire can be described and designated into three groups, they are called tinder, kindling and fuel. Tinder is small lint like and easily ignited, very dry such as shredded

cedar bark, birds nest, squirrel nest, small grass tufts or charcloth. The next up in size is kindling. This group consist of small to medium sized sticks, around pencil sized to thumb sized in diameter. Break these twigs to lengths of about six to twelve inches long. Then at last there is the fuel. Fuel is wood larger than kindling up to arm sized. It is discouraged to burn fuel larger in size than can be burned during the life of the fire. Do not place anything in the fire so large that it will not be burned completely away by the end of the fire. No tree trunks or very large limbs.



Firewood

Once the fuel is collected it is time to prepare the site. Remove all ground clutter, ground cover, leaves twigs etc. Move this material to a safe out of the way location. Protect it from being trampled. It will be replaced when he use of the fire is over and the site is being repaired. Clear a safe area for the fire circle. NO flammable material within 20 feet, or more as conditions warrant, be aware of flammables overhead. For example do not build under a low hanging or resinous limbs. The removing of ground cover, leaves and twigs in an area this wide performs two task. One it creates a fire break. Second it



Fire pit, soil and groundcover

protects this material. Any materials left will be pulverized and ground into dust with all the foot traffic around the fire. Removing it protects it so it can be replaced later. Dig the sod. Remove any grass in such a way that the root systems are left intact. Place the sod on a piece of plastic, canvas or tarp. Store in a shaded location, safe from being trampled. The sod will be replanted when finished. It may be necessary to sprinkle it with water it occasionally. Dig the pit in the style required for the finished fire pit. Protect the soil that was removed. Place it with the sod. This is living soil. The extreme heat from the fire will kill the organisms in it. By the end you should have three separate piles to protect, leaves, plants and soil. The plants can be temporarily replanted in the dirt pile. Place near the fire circle some sort of fire extinguishing agent, a bucket of water or sand. Keep fire tending tools, as a shovel, close at hand.

A useful addition to a fire pit is the sump. This is a hole about the size of a soup can in the pit near the edge. This is the location where food liquids may be poured for disposal. Liquids no longer of use such as starch water not used after boiling potatoes or pasta. Never dispose of foodstuff near or in camp. The sump allows the fire to destroy such wildlife attractive agents without having to pour it on the fire.

Once the site preparation is complete the fire can be lit. To do so, take your ignition bundle of small match sized twigs. Fold it on itself and break it in half. This break creates splits and fractures that will catch a flame more easily than the unbroken edges. It also makes all of the ends even. When using a match to light the fire, no further action is required. The ignition bundle will readily catch a flame.

When starting the fire from a different heat source such as a coal. Place a golf ball sized bunch of tinder in the center of the broken ends of the bundle. NEVER USE LIQUID FUELS TO LIGHT A FIRE. Gasoline and the like are extremely dangerous.

The bundle can be held or it may be placed tinder down over a small limb in center of the fire pit. I prefer the method of holding the ignition bundle to ignite it. Tip: Tie the kindling after it has been broken to keep the twigs intact after it has been ignited. Light a match, hold it under the broken ends of the kindling. Hold the kindling over the flame and turn it to accept the flame. Turn the bundle to grow the flame. When it is burning strongly place it, flame down, on a wrist sized log in the fire pit. As the fire grows, add kindling. As the fire consumes the material continue to add fuel increasing in size.



Lighting Ignition Bundle

Holding the tinder/kindling during the initial ignition process has advantages. It is the method I prefer to use and the method teach. The first advantage of holding the ignition bundle comes from knowing that air and fuel temperatures play a roll in ignition. Close to the ground there is a small temperature drop as well as air currents that adversely affect the ignition. Therefore lighting your tender away from this is beneficial. The second is that heat from a flame flows upward (convection). Holding the ignition bundle (kindling/tinder) allows you to twist and turn the bundle to force the heat to flow through the ignition bundle for maximum effect. Heat lost is otherwise wasted. The held ignition bundle may also be more easily shielded from any wind and rain than if it were on the ground.

Children are taught “not to play with matches.” Consequently they/we are not taught nor gain the experience in the proper method of striking matches. Neither are we taught the accordingly important aspects of match safety. To strike a match: Hold a kitchen match by the wooden end with the head down. Hold it between your thumb and fore finger. Place the middle finger close to, but not on, the head. Push the match along the striker with the middle finger and a flick of the wrist. When ignition begins open the middle finger. Keeping a hold on the match with the thumb and forefinger. Bring all of the fingers together to cup the match with the hand. Allowing the flame to grow up along the shaft. During windy conditions the act of cupping the flame can be improved by using the other hand. To reduce the rate of burn on the matchstick, turn it over with the match head & flame up. To increase the burn turn the match with the head down allowing the flame to burn up the stick. With this technique a match flame can be maintained even in windy conditions. Do not wear loose sleeves when doing this. Frayed cuffs will catch quite readily as will man-made fibers. Push or roll long sleeves up toward the elbow.



Striking a Match

If you are starting a fire with a coal as from a previous fire or from a flint and steel or fire bow a similar technique can be applied. In addition to the ignition bundle is a ball of kindling called the birds nest. Gather a loosely packed ball of tinder, about the size of a baseball. Open the ball in half. Place the coal in the center then fold closed. Or open a tunnel down to the center and place the coal in the tunnel. Gently swing the arm with fingers open allowing air in between. As the spark (coal) gathers its heat it will begin to smoke and eventually burn. Place this burning ball under your kindling as you would a match.

Tip: Collect, bundle and tie extra tinder and kindling. Store in a dry location for the morning fire. Tinder can be any fuel that is dry and will readily catch a spark or flame. Good tinder can be anything from drier lint (100% cotton), dried grass tufts, shredded cedar bark, etc.

There are many fire aid tools available. Ferro rods seem to be the most popular. These are great if you have one. Learning the techniques without special tools provides you the ability to use extra tools when available. Otherwise they become a crutch.



Build the fire only as large as you need to perform the task and never larger than you have the ability to extinguish. Do Not place glass or metals (including tin foil) in a fire. It will have to be removed when the fire is extinguished.

Note: Wet or “green” fuel will burn if it is small enough, or the heat is great enough, and if it is added slowly to an existing fire. To burn the moisture must be driven out by the heat of the fire. It will smoke more than dried fuel and green fuel will produce only about 1/2 of the heat output per pound. Do not attempt to start a fire with green kindling. It won't work.



**CAUTION:** Learn to recognize poisonous plants by sight, with and without the foliage. Plants like the poison oak and ivy family and poison sumac. **DO NOT** burn these plants. Breathing or even being exposed to the smoke can cause dangerous and life threatening complications. If you do not know them on sight simply remove all vines from the wood as if they were poisonous plants.

Finally we can get to the cooking portion of the program. Cooking over a fire can be broken down into several categories or methods, boiling, frying and baking. Boiling a pot of coffee or stew will differ greatly from cooking in a skillet/wok which differs from cooking in a dutch-oven.

These variables in cooking styles are compounded by the temperature and burn characteristics of different types of wood in various stages of seasoning or decay. It can be quite a challenge.

The type and condition of available fuel plays a major factor in cooking techniques. Seasoned hardwood makes excellent long lived and hot coals. However such firewood is not always available. At some point (most of the time) in wilderness cooking, the fuel will be less than optimum. Softwoods, resinous woods, green and even very dry woods moving towards rotten woods all burn differently and produce a different amount of heat per pound. Cooking on smaller limbs and sticks differs greatly from cooking on a bed of hardwood coals or briquettes.

Preparing a meal over an open flame offers its own challenges. The proper and safe preparation of food requires that your meals reach the proper temperature. It is also necessary to maintain said temperature for an appropriate amount of time. This is critical to preparation of safe meals. Once food safety is assured a further requirement of time and temperature is often necessary for taste and quality of the meal.

This may sound redundant but it is important so I repeat. Prior to starting your meal preparation, collect, sort and categorize at least enough fuel to perform all cooking and clean-up. Timing is everything. Determine the timeline for starting the fire and food preparation. When using quick burning fuels it is frustrating to have the fire burn out while the cook is in the kitchen getting food ready to cook. Conversely it is equally frustrating to have the meal prepared for heat only to be caught waiting on the fire to burn down the the proper consistency.

Each member of the group should have a job. One will obviously be the chief cook, another will be in charge of tending the fire. Depending on the number in your party the assistant cook can also tend the fire. If you are the sole member of your camp. Planning becomes everything. The good news is; the only person to disappoint is yourself.

Soft and quick burning fuels are the most difficult to use. This type of fuel burns more quickly, has less heat available per pound than hardwoods and subsequently they require a much larger quantity of fuel to be stacked and readied for use. These types of fuels will also require a change from optimal cooking procedures. Rather than cooking over a nice bed of coals it will be necessary to cook with short lived coals or over an open flame. This requires constantly feeding small quantities of fuel and coals under the cooking vessels and constantly

monitoring the cooking temperature. Fuels such as nearly decayed wood or softwoods, willows, cedars, pines etc. and each of these in their own state of decay and size each present their own challenges.

All of that said lets get to the meat of the matter, so to speak. Lets assume the group has pitched in and gathered all the fuel needed. It has been broken into manageable lengths and stacked near fire site. The stack is arranged according to size and type. There may be a second stack of fuel of fuel that is of a different quality. And yet a third pile some distance away that has been collected but not yet processed and sorted into usable lengths.

While on the topic of fuel storage this is a good time to mention that it is a very good idea to set aside a separate stack of all of the breakfast fuel needed. This stack is to be considered sacrosanct. A stack not to be touched until breakfast. After the food is cooked and pots are cleaned the “cook fire” will change to a “community fire”. The community fire is a place to sit around telling stories, talking philosophy or just “coal gazing”. This time is enjoyable and much fuel can be consumed during this time. This community fire is a good time to burn the low quality fuel. Burning all of the good cooking fuel is ill advised. Doing so will require the gathering of more firewood before breakfast preparation can begin.

It is rewarding to wake at the break of a new day, crawl out of your bedroll and start a fire in the cool dawn air. Using the neatly stored tinder, kindling and fuel that was covered against dew or rain. As dawn breaks the coffee can be started next to the open flame as the fire crackles to life. This quiet time of the morning, as the forest awakens, is very special and can be ruined by the requirement of rummaging through the forest scrounging for firewood. Especially if it is bitter cold and raining or the planned morning routine is time sensitive. Time sensitive may mean it is necessary cook, clean and pack up quickly and get on the trail. Time spent collecting firewood in the early AM would be a poor allocation of time.

First consideration is how large or complex a meal you will be preparing. For how many people will you be cooking. The next decision to be made for your camp/cook fire is the type. A group of 1 to 8 people generally



Keyhole Fire



Log Cabin Fire

can be accommodated with a small Keyhole or Shelf fire. These are two of my favorite fire lays. A variation on the Keyhole and shelf fire is the one I use the most. Then of course there is the type and quantity of heat required. Will a large bed of coals be needed all at once or smaller volume of coals a bit at a time? How many and what size and type of cooking pots, pans, ovens will be used or will you be roasting over an open fire?

As mentioned smaller groups do well with a Keyhole fire. Feeding the fire as needed to keep the coals at the right volume and size when needed. Experience plays a large roll in the timing on this in knowing the size, type and condition of fuel available. Larger groups may be required to make a Log Cabin Fire. The Log Cabin Fire

will produce a large bed of coals. If the wood is of good quality these coals may last an hour or more.

Your campfire is usually the focal point of the campsite. The campsite and camp activities are arranged around the campfire. My friends and I camp in the backwoods and because of this every site is different. There are no tent pads or fire rings. Among factors to consider for a campsite, kitchen layout should be foremost in the mind. Kitchen layout planning starts with regards to fire location and type of fire. Type of fire is determined by the planned meals. Also, once cooking is complete, will the fire location allow everyone access around the fire?

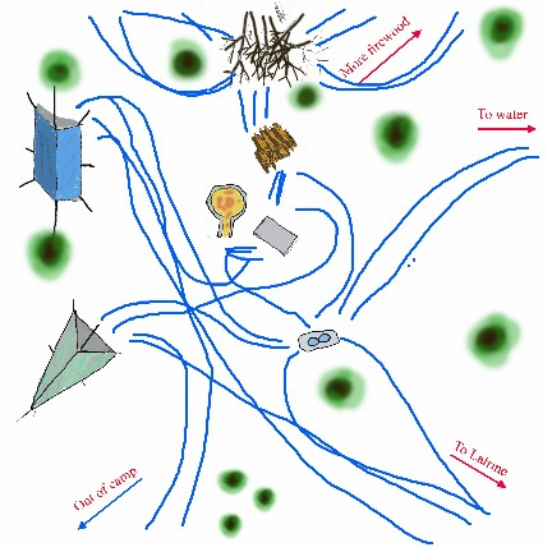
Wood stack and wood yard locations are decided next. All must be chosen with traffic patterns in mind. When planning the traffic patterns through camp plan so the trails do not pass through the kitchen. Kitchen area planning should include easy access the fire and the food preparation area for the cook. Factors affecting traffic through camp will include water access, the latrine site, future wood gathering and storage, shelter sites, trees and underbrush as well as by the topography of the area.

In small groups where the person cooking is also doing the food preparation the food preparation area and the cooking area will be within arms reach of each other. Thus minimizing travel back and forth and up and down. My average camping trips usually have 2 to 4 people therefore our kitchen will have access on each side. The Cook can cook and prepare food by simply turning. The assistant cook can aid in food preparation from the other side of the kitchen tarp and turn to tend the fire with minimum exertion. This minimizes foot traffic around the food. We usually have the kitchen on a small 2' x 4' tarp or canvas. Minimizing foot traffic reduces the potential for debris to be disturbed around the food.

Cooking for a larger group may necessitate that the food preparation be performed well away from the fire site. More people also means there will be attendants to aid the cook, possibly more than one cook. Food preparation areas should be close enough to the cooking area as to be convenient for travel between the fire and kitchen, but not so close as to create a traffic problem or congestion around either the fire or the preparation area. If the group should become so large as to require a second fire, both cooks can be serviced by a single food preparation area.

The Keyhole fire is the fire lay in which I find most suited to cooking. Named after the appearance of old skeleton key holes. The larger round part is where the fire is burned to generate coals. The narrow slot is where the cooking is performed. Coals are shoveled or scraped as needed from the main burn area into the slot. The slot can be made from two logs or rocks placed close enough to rest a skillet. I have also used molded mud or used a trench, even green limbs driven into the ground. The end is left open to allow air flow keeping the coals alive. As more heat is needed more coals can be scraped into the slot or the skillet/wok can be moved closer to the fire. If needed there can be more than one cooking slot.

The decision when to start the fire is based on the food preparation time line. As soon as the fire has begun to burn well, place a pot of water against the fire to heat. Hot water is always needed. Heat from a good fire is not to be wasted. Any unused pot should contain water to be boiled. Water can be



Traffic Pattern



Adjustable Pot Rack





Water Bag

purified by boiling. If hot water is not needed to cook some part of the meal it will eventually be needed for cleanup. Water can be boiled directly in the flames. Heating over a bed of coals is not required. Take care to keep the handle turned away from the greatest part of the heat. Building a simple adjustable pot rack is most useful.

On the topic of water. Prior to beginning the meal preparation the kitchen must be set-up and organized. This includes placing the kitchen cloth in its final location. Choosing the required pot and pans and laying out the food that will be used for the meal. A supply of water should be gathered and made available nearby. A modified small pillowcase or similar lined with 1 or 2 gallon reclosable plastic bag makes a great water bag. This makes for an excellent water system. Hung from a nearby limb or tripod over the sink it can be tipped by one person and poured into a canteen or pot and used to wash the hands. FYI two gallons of water will weigh 16 pounds.

An expedient sink can be created by digging two shallow, bowl shaped, holes next to each other. Pack the removed soil around the rim. Remove all sharp objects, roots and stones and line the holes with plastic. A heavy duty garbage bag when twisted into a figure 8 works well as a liner.

Water must be purified prior to consumption. Water MUST be purified prior to consumption! I repeated it because of its importance. Boiling is the most sure method of purification. Boiling water takes time and heat and then usually must be allowed to cool before use. Water can be treated chemically with iodine tablets, sodium hypochlorite or other chemical methods. Knowing the volume of the liner in your hanging water bag makes adding the proper amount of chemical treatment more accurate. Add 2 drops of 5.25% unscented chlorine bleach (sodium hypochlorite) per 1 qt. of water. Mix well allow to rest 30 minutes. When gathering water use your bandanna or similar cloth to filter out larger organic particles. Removing organic bits make purification more effective and improves the taste.

Boiling water is a more sure method to purify water but it has its drawbacks. Firstly it is not necessary to chemically treat water that will be boiled in the process of cooking i.e. potatoes, coffee, cleanup water etc. Water for hand washing should be sanitized. The act of boiling water drives out dissolved air making the water taste flat. This can be remedied by pouring back and forth between two sanitized pots or shaking a canteen. Boiled water must also be cooled before it can be drunk or poured into plastic containers. Boiling is a more sure method to kill all microorganisms than chemicals. Be advised, water coming out of a spring is NOT pure. Many springs are just underground runoff. I have seen streams go underground through a small cave system and reemerge. While underground it may encounter animal feces and even the carcass of an animal. Assume all water contains microorganisms. Note: Chemical treatments and boiling purification methods do not remove toxic contamination. Chemical methods kill most bacterial contamination.



Kitchen Cloth & Misc.

My cook kit includes a kitchen 2' x 4' canvas, 2 qt. coffee pot, a 2 qt. pot, a 10" wok and small 8" aluminum dutch oven. As well as pair of chopsticks, a spatula that fits the wok, a graduated measuring cup and teaspoon, a piece of oiled plywood as a chopping block, a small bottle of cooking oil and assorted spices. As well as small bottle of dish soap and scrub pad. On occasion a backpacking multi-fuel stove and lastly a small gardening hand trowel as a shovel.



Dutch Oven & Pliers

Dutch ovens are one of my regular cooking tools. When backpacking or canoeing I will bring an oven made of cast aluminum rather than cast iron. Dutch ovens are great for making biscuits, bread, cobblers as well as the main courses, chicken pot pie, au gratin, or chicken and dumplings to list a few. The pot, of course, can be used as a pot. Dutch ovens are very versatile.

There are many kitchen tools and gadgets available for use in the outdoor kitchen. Items such as grills, reflectors, pot hangers, and racks etc. Each of these can be useful if and when they are available. When backpacking or on an forced evacuation, space and weight may be limited. For this article I will make the assumption that these items are not available. My personal philosophy is to learn and become adept at the basics (the

most primitive of technologies) while using the least possible gear. Adding to your kitchen supplies is easy enough to do later. Doing so will take little or no experience to learn its use. Except possibly for the backpacking stove. Backpacking stoves do require some skill and regular maintenance. Each as per its own type and style. There is one tool that I find essential. I recommend its use, always. A good knee pad. Learning to squat is beneficial but a good knee pad is a welcome respite to squatting.



Knee Pad (boat cushion)

Using a duct oven however is easy and well worth the investment in time required to gain experience. The most difficult skill is obtaining a regulated temperature within the oven. There are many books available that will give formulas as to how many briquettes on top and bottom to achieve a given temperature. Briquettes are mostly used in the backyard or when camping out of the back of a vehicle. When in the wilderness or in the absence of briquettes the coal density and volume must be learned. Trial and error combined with use and observation will work best. Remember to preheat the oven.

Meals eaten during campouts are generally planned prior to the trip and precise quantities of specific foods are allocated per meal. In this manner there is enough of everything for each meal with little or no waste. After all we pack it in. During an evacuation meals may be compiled from whatever supplies are available. Either way, prior to starting the cook fire, have a plan. Assemble the food that will be used for that meal as well as the cookware needed. Unneeded materials should be packed away.

Menu planning is a large part of preparing for any outing. Planning not only the food but the cookware. Supplies include not just the primary ingredients required for each meal but any spices required as well as utensils, pots, pans, woks, measuring cups and spatulas must all be available. Bear in mind size is important, pot size.

Meal preparation considerations must also include individual requirements and taste. One member of your group may choose not to eat pork, another may not like curry and still another may be allergic to the peanut oil in which you plan cook. These are fairly easy obstacles to overcome when taken into consideration prior to an outing.

Cleanup after a meal is as important as the preparation of the meal itself. Let me offer a few tricks. Firstly when the cooking is completed and you are sitting to eat. Place a pot or two of water on the fire to boil. Secondly eat everything, leave no food in the bowls (we eat out of bowls rather than plates) or pots. Use your bread or biscuits to wipe out and eat completely everything in the bowls and pots. Removing all of the foodstuffs from the utensils and pots prior to washing uses less clean water. Water that most likely has been gathered, transported, filtered and sanitized. Water is precious.



Clean your dishes immediately after the meal is consumed. It is not recommended to leave the cleanup for later. Uncleaned dishes will attract wildlife large and small. It is also discouraging when dishes must be washed at the start of the next meal. Bacteria does not grow on clean dishes. Campouts or evacuations are not the time to experience gastric distress or food poisoning. The cleanup can be performed using a very small amount of water by washing from pot to pot or it can be done at the expedient sink. If your cooking created a sticky mess it can be scrubbed with an expedient scrub stick. A green branch sharpened to a wedge or with the end mashed between two rocks to create a fuzzy end. Sand can also be used to scour pots. Then wash them with soapy water as you would normally. Once the pots and utensils have been soaped and scrubbed they are rinsed with hot sanitized water. If this is your last meal at this site and you are preparing to pack. Wet pots can be dried using the heat of the fire. Use care not to overheat the metal.

Unused food stuffs attract wildlife. This is a bad thing. Especially in bear or fire ant country, but have no doubt a hungry raccoon can do much damage overnight. Hang all trash and “smellables” (anything that smells and will attract wildlife) well out of the reach of any likely marauding animal.

If you make the decision to burn your trash do so responsibly. Burn trash only after cooking is complete. Burn on a hot well burning fire so the trash does not smolder. Place burnable trash on the fire one piece at a time to allow complete combustion. Tin cans can be burnt-out by placing them in the fire until all the remaining food has been burnt-out, then remove the metal and allow it to cool before smashing flat and placing in the pack-out trash bag.

Caution: Burning plastic, Styrofoam and other man-made non-organic materials will produce toxic fumes and smoke.

Fire safety is a responsibility not to be taken lightly. Fires should **never** be left unattended. Fires are not out until they are extinguished and out cold. Cold to the touch with the bare hands.



Dousing a Fire

Start by building a fire no larger than you need. Build your fire using the smallest diameter and length fuel possible it will burn down more quickly and leave less to extinguish. Manage your fire by turning in the unburnt ends as to consume all fuel. Manage your fire by planning it so all the fuel will be consumed by the end of its usefulness. Nearing the end of the fire's usefulness allow it to burn as far down as possible. Use only use small sized fuel. Do not burn fuel larger than your ability to extinguish.

When it is time to extinguish the fire pour water on the fire, coals and any partially burnt fuel. **Take care!** Extremely hot underlying soil and rocks will hold heat (a lot of heat) for quite a while. When water poured over it it may turn to steam and flash upward. **This can be dangerous.** Steam will cause nasty burns. Expect this and do not stand directly over it. Pour water in slowly It is usually best to pour around the edges inward. Allowing the fire subsoil to cool slowly. Using a stick or your shovel, stir the water into the ashes and coals thoroughly wetting all materials.



Sink

Any trash, unburnt plastics, or metals placed in the fire must be removed and packed out for proper disposal. Never place glass containers in a fire. It is best to have removed any unburnable objects as soon as the foodstuffs had been burnt out. Once the mash of ash and coals have cooled enough to be handled with the bare hands, remove all wet and unburnt charcoal and widely disperse. Use of the bare hands in this process ensures the coals are out cold. Use caution as the water used to extinguish the fire may need time to cool before it is safe to handle. Replace the soil that was previously removed and saved in a secure location. Replant and water the sod or any plants dug. Return the ground cover that was removed. Scatter any unused firewood. When you leave you should be able to turn around and not see that any human was there. Leave it without a trace.

Cooking in the wilderness can be satisfying, thrilling and delicious. Walking upon an old burnt out, litter strewn fire ring should not be part of any wilderness experience. Do your part and enjoy!

Links:

Recommended videos

[Dousing a fire](#)

[Flint and steel fire](#)

[Camping Recipes](#)

Recommended books

[Empowerment Readiness.](#)

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