

Campfire Preparation¹

Before you ever strike a match, you are responsible for a lot of pre-fire planning. Whether you are making a fire for fun, cooking, or warmth, make sure you consider these topics and make good decisions to ensure a safe and appropriate fire. Just as there are 3 elements to fire (**fuel, air, heat**), there are 3 keys to preparing for fire - **permits, safety, and site selection**.

Fire Permits

"Every national park, state or federal forest, and all public land has fire burning restrictions. Those restrictions may range from 'any fire any place' to 'no fires at all' depending on fire danger levels and environmental impacts. It is **your responsibility** to find out and understand the restrictions before you enter an area. A phone call to the local forest ranger or land manager will enlighten you and keep you out of trouble. Sometimes permits have a cost, but often are free and are a simple means to track and manage forest use.

Some areas also require 'Use Permits' that are often free and used just for tracking visitors. If you fail to get a required permit, then there may be a fine if you are checked.

Fire Danger

Even if you *CAN* have a fire, it doesn't mean you *SHOULD* have a fire. When in the wild, you always need to use sense and be prepared to take responsibility for the results of your actions. There are three key indicators you should consider whenever you are interested in lighting a fire of any size:

Wind

- embers and sparks can easily blow dozens of feet on a gust of wind. On a windy day, use a backpack stove or special fire lay to minimize fire danger.

Heat

- high temperatures increase the risk of spreading fire. Higher temperatures dry out vegetation and keep fires alive. Besides, a fire on a hot day isn't nearly as nice as on a cool evening.

Humidity

- Low humidity sucks moisture out of vegetation and dead fuel. This makes a perfect environment for fire by friction practice, but a dangerous environment for wild fires.

A dry, hot, wind is the ultimate wildfire maker. Numerous campfires have been whipped

¹ This material is from www.Camfiredude.com

into wildfires destroying thousands and thousands of acres of wilderness all because a person made a poor choice and built a fire in dangerous conditions without considering the risks of his or her actions.

It is best to be conservative - only start a fire when conditions are good, not when conditions are 'not too bad'. And remember that you are a guest in the wilderness and have a responsibility to protect it from your impact.

Fire Safety

"So, you decided to have a fire. That's great! It should be a lot of fun and mmmmmmmmm, your meal will taste great! Now, before you start building it, make sure you can put it out! And, the only sure way to do that is with **water** - not dirt or sand, just water.

If you do not have adequate water to extinguish your fire, you should not be lighting it. Covering a fire with dirt will extinguish the flames, but the hot coals can continue to smolder for hours - long enough to ignite underground roots or to blaze back to life when the wind picks up the next day after you have left the site.

And, the water should be immediately available right by the fire, not in the river 200 feet away or in a bottle over by the tent. The water needs to be earmarked for fire suppression and not just whatever is left after cooking and cleaning. If you don't do that, you'll discover that all the water is used up right when that stray ember starts some dry grass burning.

Fire Site

Considering fire danger levels, having correct permits, and being prepared to extinguish your fire are all important steps to guarantee a safe fire. **Where** you actually build your fire and how you prepare the site are the two most important things you do once you decide to have a campfire.

A fire makes an impact wherever it burns. As a conscientious wilderness visitor, you decide how big and how long-lasting that impact will be. Your goal should be to leave no trace of fire once you move on. As far as your campfire goes, you make an impact in many ways, and all of them can be minimized:

Gather Fuel - gathering wood far away from camp and taking only dead, down branches makes less impact. Taking close, easy wood soon strips a site and leaves a scar on the land.

Disperse Ashes - burn all wood down to ash. When you leave the site, take the ash with you and disperse it into the woods well off the trail. Leaving ashes at the site flags it and attracts others to overuse the same spot, creating a high-use sore.

Fire Site - making a small fire that can be easily erased should be your goal when choosing a fire site. If there is an existing fire ring, use it, otherwise take extra steps to ensure a stealth fire.

When using the wilderness, you should make use of the most durable surface

available. For example, walking on rocks instead of fragile grass when hiking, or setting up a tent on sand instead of a field of wildflowers. The same goal is true when making your fire, but there are some things that you may not have considered. Here are ways to make a fire that will have a minimal impact:

Fire Mat or Pan - bring your own pan or mat in which to build your fire. Set this on a few supporting stones to have zero impact and remember to spread out your wood gathering and ashe dispersal.

Sand - scoop out a shallow fire ring in sand. When finished, scoop ash and dead coals out and disperse them. Smooth sand over the ring and no one will know you were there.

Rock - building a fire on a flat rock sounds like a good idea. Easy to remove the ash and it is sure durable. The problem is that a fire will blacken the rock noticeably and it may last many years. If you make a fire under a rock overhang, the smoke can make a very visible mark for a long time.

Dirt - probably the most common place to make fire. This is usually from previous use. If there is a firering in place, use it. If you need to make your own fire site, do this:

- Ensure there is no overhanging vegetation. Picture of leaf-covered site with trees and brush.
- Clear an area 10 feet across. Picture of area cleared of leaves in 10 foot circle
- Optionally create a small barrier from logs or rocks. Skip this if you are in a light traffic area. Picture or rock or log circle
- Get your water ready. Picture of water bucket by circle
- Lay, light, and enjoy your fire. Picture of fire
- After extinguishing your fire, scoop up the ash and coals to be dispersed. Picture of scooping
- Restore the area as it was. Picture of original area

Mound Fire - in a fairly pristine area, using a fire mound for a small fire may be the best bet. . . basically you:

- lay down a tarp
- pile mineral soil on top and flatten it to 6 inches deep
- use your fire on the mound
- disperse the ash and return the soil

This method of fire has no lasting impact when done correctly

Fuel for the Fire

Ready to get that fire burning? No, not yet! You have a site selected and have your water to put it out, but you first need to gather your fuel. There's a lot more to this than throwing a couple sticks in a pile and tossing on a lit match.

Keeping with our theme of **3** from the [fire triangle](#), you need to gather three different things to burn - **tinder, kindling, and fuelwood**. If you want a good fire, you need to carefully select each of these items.

Before we get into tinder, kindling, and fuelwood, I want to mention that its a really, really good idea to make yourself a personal fire kit as well as a personal first aid kit. A fire kit contains everything you need to get a fire started.

Tinder

Dry and fluffy - that's the key. Your fire starts from tinder - without tinder, no fire. In modern times, a match serves the purpose of spark and tinder. So, you could possibly skip tinder if you have a good supply of matches. But, starting with a small pile of tinder will make things so much easier for you. Tinder is about as big around as a needle or a string.

Tinder can be any dry, easily lit, shredded material. Some good examples include cedar bark, grass, pine needles, wood shavings, pitch, milk weed fluff, char cloth, clothes dryer lint, or wax. Finding tinder can be a challenge in damp weather, but that is when it is most important. You can always create wood shaving tinder from inside a split log if all the grass and bark is damp or keep some char cloth in your fire kit.

Kindling

Once tinder has caught fire, it's heat can get larger pieces burning. These larger pieces are called kindling and they are not really all that big. Kindling is usually little splinters of wood, small twigs, or fuzz sticks. A greenhorn mistake once tinder catches is: too much, too big, too fast. Many fires have been smothered from dropping big sticks onto a small flame. Take your time and build from miniscule to tiny to small to healthy flames.

Just as with tinder, it is important to have dry kindling. If its damp, split wood and collect the dry inner bits. Even split small sticks and twigs to expose the dry inner surfaces. Use a knife to whittle away the damp bark before using sticks if necessary. Pine makes better kindling than the hardwoods because it is easier to split down and catches faster. Kindling typically has the diameter of a match up to the size of a pencil. You should be able to snap kindling with your hands.

Fuelwood

I bet you are thinking of using big logs like are used in cozy log cabin fireplaces. Nope! Fuelwood in a campfire doesn't need to be bigger around than your wrist. For big, entertaining campfires, your forearm is a good size estimate but there's no need to burn anything larger than that.

Fuelwood is the life of the campfire. There is a heart of hot coals now and as long as you continue to feed fuel, the fire will continue to live. Fuelwood can be damp because the heat of the fire will dry it and then it will combust. But, don't be tempted to stack damp wood close to your fire in the hopes of drying it out - that is just asking for trouble.

Different woods have different burn qualities. Hardwoods such as oak and maple burn hot and long while pine burns fast with more soot. Depending on the environment, you may not have much choice in your wood selection.

Even though there are three main categories of fuel - tinder, kindling, and fuelwood - use your brain and understand that there are really fuzzy lines between the categories. A particular stick could be kindling or fuelwood, depending on the current size of the fire and how big it needs to be.

If your tinder has just produced a flame, don't put pencil-sized kindling on it - use match-size pieces instead and work up to the pencil-sized pieces. I sort out all my wood before starting a fire. I have the wood piled in increasingly large pieces so I can start from one end and work my way up and that works well for me.

Fuel Tips

Some advice to keep in mind:

- Only collect wood that snaps and breaks. If it bends, it is too moist to burn.
- Collect at least twice as much as you think you'll need - three times as much is better.
- Collect only down wood. Do not cut down trees even if they are dead.
- Collect your fuel BEFORE setting a spark - your fire will go out while you are looking for more fuel.
- Gather wood far away from camp so you do not strip the site.
- Pine needles and Pine cones are good for fire starting.
- Leaves are poor for fire starting. There is little room for air.

Breaking Wood

So, what do you do when you find a nice, dry wood source, but the branches are all 5 or 8 feet long? There are a few good ways to break branches and too many bad ways:

Forked Tree - Place your branch between the two trunks and push the branch against one trunk. It will break where it contacts the trunk. Be careful not to fall forward when the branch breaks.

Over Your Knee - Hold both ends of the branch and put your knee in the middle. Lift both ends, pressing your knee against it until it breaks. Works fine for smaller branches, but don't force the size.

Under Your Foot - Lay the branch on the ground and place your foot on it where you want it to break. Lift one end until it snaps. Lift with your legs, don't bend over and lift with your back.

Foot Stomp - Lay the branch on the ground with one end on a rock or log between 6 and 12 inches tall. Stomp down on the branch where you want it to break. Be careful of the broken piece bouncing up from the ground.

Whack It - DO NOT swing your branch like a baseball bat against the trunk of a tree. It will break where it hits the trunk. The broken piece will fly off and poke a hole through your tent or your buddy. And, your hands will sting from the impact.

See Saw - DO NOT lay the branch across a rock or stump and have your buddy bounce on the other end. You'll both get dirty, sore butts and probably cuts from flying splinters.

FIRE LAYS

Wow, now you're really ready to go. You've got a site, collected your [tinder, kindling, and fuelwood](#) and now you just need to put it all together.

So, how are you going to build your campfire? The way you assemble your wood before lighting it is called the *Fire Lay* and there are a few classic methods to use, depending on what you will use your fire for. I nearly always start with a teepee unless I've been asked to create a large council fire for entertainment.

Whatever type of fire you decide to make, keep these things in mind:

- Plan where you will light it - leave an opening to reach the tinder.
- Light the upwind side so the wind blows the flame into the fuel.
- Leave air space between pieces of wood.
- Build UP, not OUT. Create a higher pile of wood rather than a flatter pile.

Teepee Fire

This is a favorite and the most useful and easiest to light. The key is to stick a few sticks into the ground to supply support for the rest of the kindling.

1. Place your tinder bundle on the ground or on a small piece of bark.
2. Stick three or four kindling twigs in the ground to form a teepee above the tinder.
3. Lean small kindling twigs against the downwind side of the tinder.
4. Leave an opening on the upwind side all the way to the center tinder where you can light the fire.
5. Continue to lean twigs around the teepee structure.
6. Work your way up to pencil-sized sticks, leaving plenty of air space between sticks.
7. Poke three or four pencil-sized sticks into the ground forming a larger teepee structure.
8. Lean some smaller fuelwood pieces against this support structure.
9. Have additional small fuelwood and kindling ready in case it is needed.

This style produces a fast flame and quickly falls into itself in a pile of coals. The heat is directed up to a single point and is useful for boiling water in a single pot above the

teepee. Once the teepee collapses, fuelwood can be laid around it like a log cabin or just criss-cross on top of the flames.

Log Cabin Fire

This is the most popular style for beginners to build - I don't know why, maybe because it looks like a house? Anyway, I tend to not use it because it is difficult to access the interior. But, I do add wood to a burning teepee fire to turn it into a log cabin.

1. Lay a small teepee fire.
2. Lay two larger pieces of fuelwood parallel on opposite sides of the teepee.
3. Lay two slightly smaller pieces of fuelwood parallel on the other two opposite sides. Leave a space under the upwind piece through which you can reach the tinder to light it - you might need to fashion a mini-torch and stick it in to light.
4. Continue to lay smaller and shorter pieces to form a cabin or pyramid shape.
5. Have extra kindling ready to drop into the top or through the spaces on the sides to feed the internal fire until the outer walls catch fire.

This kind of fire makes good coals and is a classic campfire look. Getting it lit is the challenge.

Lean-To Fire

This fire keeps air space open due to the support stick and a steady, light wind really helps it get started.

1. Stick a long, large piece of kindling in the ground at a flat angle. It should point into the wind.
2. Place your tinder bundle under the stick.
3. Lean very tiny pieces of kindling on the tinder bundle.
4. Lean more small kindling against the support stick.
5. Lean larger kindling against the first layer.
6. You could create a second lean-to of larger sticks over the first lean-to.

This is fun to light, but the most common challenge is burning up all the tinder without catching the kindling because too much air space is left open. Once it gets going, it's fun to anticipate the main support stick burning through and falling.

Council Fire

The big daddy of large group campfires. A council fire burns hot, bright, and for a long time without adding more wood. It does take bigger logs and is meant for entertaining big crowds.

1. Lay 4 logs, each about 5 or 6 inches across and 3 to 3.5 feet long, with about 4 inches of air space between logs.
2. Across these, lay a platform of about 6 logs, each about 5 inches across and 3 feet long.
3. Across this, lay a layer of 4 inch logs, 2.5 feet long.
4. Then, two layers of 3 inch logs, 2 feet long, in perpendicular layers.

5. Then, 2 layers of 2 inch logs, 2 feet long.
6. Then, 2 layers of 1 inch split wood, 18 inches long.

Make a lot of split kindling sticks and stick them into any open air space in the log layers.

Create a teepee structure on top of the last layer of split wood.

Leaving a space to light the teepee, continue placing more split pieces around the teepee to make a few more layers.

The teepee is lit and the fire burns its way down through the layers.

This fire maintains good flame for a long time as burning fuel drops down into the larger pieces of wood and ignites them. There is no large structural collapse as you might get with a log cabin.

Hunter's Fire

Good for cooking and has good wind protection. Not useful for entertaining or warming.

1. Retrieve two short logs 6 to 8 inches in diameter and place them nearly parallel to each other about 6 inches apart at one end and 3 inches at the other.
2. Create small teepee fire between the logs and feed it fuel until there are good coals.
3. Use the two logs as a platform on which you set your pots to cook.
4. Spread or pile the coals to create hotter and cooler cooking areas.

Light Your Fire

Finally, we're gonna light the fire! I bet you thought I'd never let you get this far with all the site preparation, fuel gathering, and laying the fire. But, its now time to light 'er up!

Remember that you need Fuel, Air, and Heat to have a fire. A very important tip to keep in mind is that Heat Rises. So, when lighting a fire, make sure you light *under* the fuel so the fire burns *up* into the fuel. I've lost count of how many times I've seen the tops of kindling burn out because the tinder was on top and then the fire needs to be laid all over again.

Lighting your campfire:

Light **Under** the tinder. Make sure kindling is above the tinder so the heat rises and burns.

Light **Upwind** - the wind will blow the fire into the fuel. You should have checked the general wind direction before laying your fire.

Position yourself between the prevailing wind and your fire lay. Too much wind will extinguish your match or tinder so you act as a windbreak.

Hold your match in place, don't toss it on the tinder or you'll use up a lot of matches.

Match Lighting

Lighting a match is a simple thing, but even such a simple task can be done correctly or clumsily:

Remove one match from the box or book and close the box so the rest are not spilled or accidentally lit.

Many people hold a match near the butt and strike away from their body. See what happens? A broken match doesn't light much.

Hold the match in your hand like this:

Strike the match toward you, using your middle finger for pressure close to the match head.

The lit match winds up in this position when lit:

Your hand is a windbreak to keep the match safe.

The match is at a 60 degree angle so the flame burns up the match.

Let your match get going before trying to start the fire. Using a match that is just flaring at the tip will fail.

Extend the burning match into the tinder and you're on your way.

Putting Out Your Campfire

By far more important than building a good campfire is to make sure you completely put it out! Every year, careless people destroy thousands of acres of wilderness and forest land by leaving campfires.

- Extinguish your campfire at least 1/2 hour before you plan to leave.
- By planning ahead, you should have burned down all the coals to ash. There should be very few chunks of coal left and no partially burned wood.
- If you *are* extinguishing a burning fire rather than hot ash and coals, first use a stick to stir the wood and ash. This is to extinguish the flames as much as you can.
- Sprinkle water over the coals. If they are hot, this will cause a lot of steam mixed with ash so avoid standing directly above or downwind of the fire. You may want to move your gear too.
- Once you have wetted down all the ash and coals, use a stick to stir everything together.
- Continue to sprinkle water and stir until no more steam rises and you hear no hissing steam.
- Let the fire area sit for 10 minutes. Good opportunity to get more water.
- Feel the area for hot spots - hold the back of your hand close to the ash, but not in it. Feel around for heat spots.
- If everything is cold, you done good, kid! If there is still heat, sprinkle more water

and stir.

- Once you feel no heat, the ash can be disposed of:
- Scoop all the coals, ash, and partially burned wood into a bag, cooking pot, or some other container.
- Carry it far out into the woods and spread it around.
- Or, carry it down the trail a 1/2 mile and then disperse it far off the trail.
- Scatter unused wood back into the surrounding woods or leave it nicely stacked if this is a high-use, established camp site.