

# TerranearPMC Safety Share

## Week of June 22, 2015 – Campfire Safety

Summertime is officially here and plans are being made for 4<sup>th</sup> of July celebrations. Many people will be having barbecues, cook-outs and making camping plans; all synonymous with campfires. Yep, there's nothing like sitting in a magical trance with family and friends, letting the dancing fire entertain you, and watching your food cook or roasting marshmallows and eating s'mores. But while campfires are great, they are the nation's leading cause of children's camping injuries, and the primary catalyst for forest fires.

A campfire may burn out of control in two basic ways: on the ground or in the trees. Dead leaves or pine needles on the ground may ignite from direct contact with burning wood, or from thermal radiation. If a root, particularly a dead one, is exposed to fire, it may smolder underground and ignite the parent tree long after the original fire is doused and the campers have left the area. Alternatively, airborne embers (or their smaller kin, sparks) may ignite dead material in overhanging branches. This latter threat is less likely, but a fire in a branch is extremely difficult to put out without firefighting equipment, and may spread more quickly than a ground fire. Embers may simply fall off logs and float away in the air, or exploding pockets of sap may eject them at high speed.

With these dangers in mind, some places prohibit all open fires, particularly at times prone to wildfires. Public areas with large tracts of woodland usually have signs that indicate the fire danger level, which usually depends on recent rain and the amount of deadfall or dry debris. Even in safer times, it is common to require registration and permits to build a campfire. Such areas are often kept under observation by rangers, who will dispatch someone to investigate any unidentified plume of smoke.

As part of your pre-panning efforts, check the weather forecast. Weather fluctuations, such as sudden gusts of wind, could make debris burn, initiating an out-of-control wildfire. Today's smart phones can provide lots of weather information, including weekly forecasts.

But before you even think of starting that fire, clear your fireplace in all directions, at least 10 feet across. Debris should be removed so that you are starting the fire on bare soil. Never locate your site near overhanging branches or standing deadwood - or too close to your tent! A *fire ring* can be built with stones and rocks to contain the fire. Keep a bucket of water close to the fire for emergency use.

A safe burning site will be far away from power lines, overhanging limbs, buildings, automobiles, equipment, rotten stumps, shrubs, dry grass and leaves. The fire will have a vertical clearance at least three times the height of the pile, as heat from the fire extends far past the actual flames that you see.

Always use dry firewood: Freshly cut wood contains up to 50 percent moisture. If steam bubbles and hisses on the fire, it's wet or green—plus, it will make more campfire smoke, which burns the eyes. It is a good idea to start your fire with the tinder (i.e. dry leaves, wood shavings, etc) and kindling (dry, dead trigs). These materials provide surface area without a lot of weight to get a fire going; logs are too much weight in the beginning. For an average fire, experts recommend two



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“hats” worth of kindling and tinder. Now it’s time to add chopped firewood; that is, wood that is thicker than 3 inches in diameter. And of course, once you’re in the process of fire-making, you don’t want to run out of fuel!

Use matches or a lighter and light tinder from all sides. You can blow on the fire to get it going with oxygen, but blow gently! Never use charcoal lighter fluid or white gas (such as Coleman lantern/camp stove gas) as a campfire accelerant. Another “never” is never place rocks in a campfire as, depending on the type of rock, there is a possibility that they can explode. This is mainly due to the moisture content in the rock. This is especially true of smooth rocks, which are a sign that they may have come from a river. The moisture within a rock can get heated rapidly, resulting in steam generation, thereby causing internal pressures and thus forcing shards to break off, causing mini projectiles. Besides moisture content, the rock type can influence exploding characteristics. Layered rocks such as sandstone are much more likely to split and perhaps explode because of the weaker bonds between their layers.

Now you also need to consider a proper fire configuration as this keeps firewood at the perfect angle for burning. And there are two basic types: the tepee and the log cabin.

- Teepee: Make a loose pile of tinder in the center (a couple of handfuls) and place the kindling vertically around the tinder in the shape of a tepee. After lighting the fire, feed it with more branches and then firewood as the fire grows.
- Log cabin: Place four large logs (about 8 to 10 inches in diameter) in a 2- to 3-foot square—well bedded down. Stack logs to form a short horizontal stack. Fill the center with tinder and kindling. There are variants of the log cabin, such as the lean-to, which is easier for novices/kids and will burn wood more slowly.

If you want less fire, dampen it with a shovelful of dirt, sand, or ash. If you desire more blaze, add kindling to the top. Don’t put a giant log on the fire at the end of the night; make sure that you time the fire’s natural end with quitting time.

At the end of the night, use your poker stick to break apart the remnants of your tepee or log cabin. Slowly pour in gallons of water and stir it around so that no more sparks can be seen. Be careful not to put your hands in the ashes for the next couple of days; ashes can remain extremely hot even under the water and cool ash mud. Hot ash from underneath is helpful if you want to have a fire the following night. If water is scarce, use sand to deprive the fire of oxygen. Sand works well, but is less effective than water at absorbing heat. Once the fire is covered thoroughly with sand, pour any water that can be spared over the sand and stir it into the ash.

Leaving a fire unattended can be dangerous. Any number of accidents might occur in the absence of people, leading to property damage, personal injury or possibly a wildfire. Ash is a good insulator, so embers left overnight only lose a fraction of their heat. It is often possible to restart the new day’s fire using the embers. In lightly used wilderness areas, it is best to replace anything that was moved while preparing the fire site, and scatter anything that was gathered, so that it looks as natural as possible. Make certain that anything that was in or near the fire is cool first.

**He who Forgives, Ends the Quarrel**

African Proverb

