**SURVIVING WILDFIRES**

**BACKGROUND**

Forest fires are a valid concern for backcountry travelers. U.S. Forest service officials report an increasing severity of fires and growing damage to public lands and neighboring communities. They point out the average length of our annual fire season is now 70 days longer than one generation ago. Forests are challenged by urban growth and development, including residential expansion in forest areas. While overarching trends are important to understand, the cause of immediate danger to hikers and backpackers are entities that are much harder to predict - humans. Our carelessness is the cause of 89% of wildfires. We do such things as smoke on forest trails, allow campfires to escape, park overheated cars in roadside weeds and light firecrackers. Indeed, the Fourth of July routinely sets the annual record for most new fires. In North America, humans cause over 61,982 fires per year. Nature does its part, as well, but is a distant second, with lightening starting an average of 10,143 fires per year. This has led to what the Department of Agriculture describes as skyrocketing fire fighting costs.

As those who care about the great outdoors and as major beneficiaries of public land recreation, it is important we practice responsible backcountry fire safety. Both to keep others and ourselves out of danger, and also preserve forests and wildlife for future generations.

**ASSESS FIRE DANGER BEFORE YOU HEAD OUT**

The Rocky Mountain region is unique from other parts of our country in that there are huge areas of public lands administered by numerous governmental agencies. This includes National Parks, National Forests, Bureau of Land Management lands, state parks, state and federal wildlife areas, regional parks, county parks, and city owned mountain parks. Each of these entities may have different standards and regulations. In fire season, know who administers the area in which you plan to hike. Check with them prior to your visit. These entities usually have websites or phone numbers you can use to contact them and learn of any restrictions in place.

Perhaps the easiest way to determine who has jurisdiction of your planned hiking route is to consult the Trails Illustrated Maps, by National Geographic. These maps highlight each jurisdiction in different colors, unlike many maps, which simply color all parkland green.

While there may be as many fire regulations, as there are governing entities, two major categories of restrictions apply. The first is Daily Fire Danger Warnings, which are often posted along roadways by fire districts and National Forest land managers. These entities have adopted common signage, using a barometer of green, yellow, and red colors. They also have standardized levels of fire danger, starting with low, progressing through moderate, high, very high and extreme. It is helpful to routinely check these signs when heading into rural areas. A second level of restrictions concern mandatory bans established by regional fire or law enforcement authorities. In Colorado, county sheriff departments have statutory authority to impose mandatory fire restrictions. These only occur during periods of extreme fire danger and should be carefully observed. These are designated as Stage 1, 2, and 3, 3 being the most dangerous. Additional prohibited activities accompany each level. **Stage1** bans occur frequently in summer months, but can be imposed year round. Typically, this level ban prohibits the use of campfires, stoves, and grills of any kind. Exceptions are fire pits and pedestal grills at developed campsites. Fires in stone rings in dispersed campsites are prohibited, as are alcohol, twig, and esbit stoves. Pressurized backpacking stoves with controls to turn on and off are permitted. **Stage2** bans are not uncommon and include further restriction. Here, most types of backpacker stoves are prohibited, including white gas and solid fuel stoves. Only pressurized canister stoves are permitted. **Stage3** bans prohibit all camping activity. All stove use, including pressurized, is not allowed.

*(barometer sign photo here)*

Fire restriction levels are generally similar across jurisdictions. However, please note that each entity often includes subtle variations in their postings. Therefor, it is wise to specifically review each organizations posting. The varying restrictions can be confusing, but they are also an essential part of trip planning, as each individual is responsible for understanding current conditions.

Violations of these regulations are a Class B misdemeanor, punishable by a fine of not more than $5000 for individuals or $10,000 for an organization or imprisonment for not more than six (6) months, or both.

**BACK COUNTRY FIRE SAFETY**

When you enter a wilderness, pay attention to any smoke you detect. See if you can locate its source and determine if it's under control. Be particularly concerned if you know a fire ban is in effect and you smell smoke. Study the smoke. Smoke scattered across an entire valley and moving in one direction suggests a fire will spread rapidly and tells you where the fire will go. A safer situation is if you see smoke rising vertically into the sky, indicating minimal wind conditions. If, at night, you spot a red glow in the atmosphere, a fire may be in your vicinity.

As you hike through an area, note the location of natural features such as rocky patches, water, and meadows. Watch for areas of construction, such as clearcuts,

roads, trails and helispots. Observe the condition of the trail or escape routes that may slow you down if you need to evacuate.

**ESCAPE ROUTES AND SAFETY ZONES**

Weather and terrain both have an effect on mountain wildfires. Temperatures, wind speed, relative humidity and precipitation all combine to shape the speed and intensity of wildfires. Topography dramatically influences fire direction. Fires are most likely to burn uphill. The steeper the slope, the faster the fire burns. A box canyon can create a chimney effect, which will draw a fire rapidly up a canyon. Fire on one side of a narrow canyon can quickly jump across to the other side. Sparks and embers can be spread up to three quarters of a mile by wind gusts.

Fire tends to start in dry, dead vegetation. Green, moist plants have some protection, but this is lost when fire heat builds and dries out surrounding vegetation, in a process known at preheating. This, in turn, causes higher intensity and faster moving fire behavior.

Do not underestimate fire behavior. Never try to outrun a fire. They can travel up to 20 miles an hour. Do not choose escape routes that are steep and uphill. Avoid locations which are upslope or downwind from a fire. Chimneys, saddles or narrow canyons are dangerous areas through which to pass.

Observe the direction of the fire and attempt to be on its flank, or better yet, get behind it. Blackened, burned-over areas are safer than untouched locations. Fires attract observers, including airplanes, helicopters and drones. Make yourself visible by carrying a bright colored tarp or tent fly.

If you have done your best to avoid a fire, but now find you must escape it, mark the location of flames on your map. Look for safe locations on the map that take you away from the fire and towards emergency services. This could be trailheads, roads, local neighborhoods, mine locations or established fire breaks. Orient your map – turn it so the top of the map page is to the north as indicated by your compass. Determine a compass bearing from your location to the safe spot you identified. A bearing will be helpful if smoke becomes too heavy to easily see through. Follow the bearing to safety.

In the worst case situation of being surrounded by fire, you must seek a refuge location and go to ground. This can be rocky slopes or areas above tree line where there is less fuel. Beaver ponds and lakes can offer safety. In extreme cases, individuals have saved lives by igniting grass and creating burned out areas in which to take refuge.

In a last resort situation, find the nearest least vegetated area, ideally, a moist low spot. Lie face down, with your feet towards the fire. Heat rises, so stay as low as you can. If you can dig lower or cover yourself with dirt, do so. Dig a small hole and breathe through it. Stay put and hope the fire quickly passes over your location.

**HIKING FIRE BURNED AREAS**

Charred forests are dangerous for years after a fire. Avoid them if you can. If you cannot, travel through them quickly. Whole trees or damaged limbs can drop without warning. Do not sit or camp under these trees, especially on windy days. Root systems which have burnt out provide invisible, underground sink holes to trap an ankle or foot. Trails become hard to locate. Signs and route markers may have vanished, making navigation difficult. After fires, trails are prone to rolling rocks and mud slides. There will likely be numerous logs across the trail. The newly exposed ground holds less water and snow melts more rapidly. Streams can flood to dangerous levels, blocking stream crossings. After a fire, land managers may officially close an area for months or years. Stay out of these areas. In the event you harm yourself in these unstable areas, you run the risk of also putting Search and Rescue workers in danger if there is a need for you to be rescued.

**HAZARDS**

If a fire starts near you, you may be able to battle it in its early stages. Remove fuel sources and throw water and dirt on it. Do not fight the fire if it endangers you or your group.

Fires cause dangerous injuries, such as burns, which require immediate first aid/medical attention. In addition, super heated air can cause burns without flames touching the body. If inhaled, this air can damage and burn lung tissue. Fire generated carbon monoxide can cause rapid asphyxiation. Treat for carbon monoxide poisoning. Under both conditions, rapid evacuation is imperative.

**CAMPFIRES**

Campfires are a classic backcountry experience. However, their use is declining, as their negative impact on the environment becomes better understood. Campfires sterilize the ground around them and they are the leading cause of forest fires. Many experienced hikers and backpackers go years without building a fire. However, the focus of this writing is safety and there are legitimate times when building a fire can prove lifesaving.

When weather conditions border on causing hypothermia, fires will provide a much needed heat source. They rapidly dry wet clothing and sterilize drinking water. If a stove fails, they allow for the preparation of hot food, which can revive exhausted campers. In emergency and accident situations, campfires revitalize sagging emotions and add comfort. This is helpful for lost individuals. Smoking fires can serve as a signal to searchers.

If circumstances call for building a fire, seek an already disturbed area or existing fire ring. A large fire is rarely necessary. If possible, it is best to build the fire near a water source, but not closer than 100 feet. Do not leave your fire unattended. When no longer needed, drown the fire site with a mixture of water and dirt. To make sure you have extinguished all burning material, move hot sticks and branches around. Continue adding water and stirring until you can detect no heat from the embers on the back of your ungloved hand.

A hidden danger exists when a campfire comes in contact with the forest duff, deteriorating organic matter which may look like soil. Duff can smolder underground for days and can reignite a fire long after you have left it.

**REPORTING A FIRE**

When you escape a fire, do not simply go home. Always report your location and experience to fire authorities. This can save lives and property. Cars at the trailhead may be burnt out and trail registers destroyed. You want to avoid the risk to rescuers who may think you are still in danger. It will take courage to report a fire you started by accident. But it is the right thing to do. By reporting the fire to authorities, many lives may be saved through immediate intervention.

When you report a fire, expect to be asked for the following type of information:

Report the location, map reference, nearest trail, drainage or mountain name.

Report the best known access point and estimated miles and time to reach the fire.

Share a timeline of the events you experienced.

Can you estimate fire size?

Color of smoke column?

Did you see flames? How long

What types of fuels were burning?

What was the weather like?

Were there thunderstorms or lightning?

Were there people in the area and did you speak to them? Try to note a description of individuals, numbers, hair color, clothing, etc. This is important for their safety, as well as fire investigation.

**MASTER TIP - WHAT TO WEAR TO A FIRE!**

It's unlikely you will have an extensive wardrobe selection in an emergency fire situation. But, here are some things to consider if you have time and options.

Although synthetics are recommended for almost all outdoor situations, avoid them in forest fires. They tend to melt and can cause severe skin burns. Historically, wool is a firefighters choice. Shed your nylon hiking pants and escape the fire in your long merino wool base layers. Wear the brightest clothes you have. Airplanes will be more likely to spot you through the smoke.

When I was first caught in a forest fire in my neighborhood woods at age 8, I developed a plan that, in my next escape, I would soak my clothes and run through the flames. Luckily, age brings wisdom and I learned that this was a terrible plan. Make your escape, but do it in dry clothes. Wet clothing turns scorching hot in the radiated heat of a fire. This is similar to the effect you see in blue jeans when you iron them with a steam iron. The same goes for the water soaked bandana across your face. You will scorch your lips and lungs.

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Art Hogling

Director

CMC Hiking Safety Seminars

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**WILDFIRE RESOURCES:** Forest Fire Tracking Information

**Active Fire Mapping Program** – Remote Sensing Application Center, USDA – Forest Service

https://fsapps.nwegov/atm

Provides a national map indicating location of current fire incidents. Updated daily in active fire seasons.

**Incidental Information System, USDA** – Forest Service -**Inciweb**

http://inciweb.nwcg.gov

InciWeb is an interagency information management system designed to provide a public single source incident information outlet. One can view a national map and click on current fire incidents. The site will then provide such information as incident type and acres involved, as well as containment level. By scrolling on the site, extensive background data is available.

**Colorado Division of Homeland Security and Emergency Management** – Department of Public Safety

<http://www.coemrgency.com>

State website for incident management of all types, including fire bans and danger maps. Has good links to county public safety agencies.