



How to Fight a Forest Fire

Three Methods: [Background Knowledge](#) [Tactics](#) [Prevention](#)

Whether you are camping, hiking or out just enjoying nature, it is not an unforeseen possibility that you might someday be dragged into knowing how to fight a forest fire. If you are the one stuck in the blaze, know what you can do to combat the fire, help the professional battling the blaze, and keep yourself safe. After all: Only you can prevent wildfires. [*Smokey the Bear enters stage left.*]

Method
1

Background Knowledge

- 1 Learn about the three fundamental needs for a fire.** These are heat, fuel and oxygen, and understanding the role that they play in forest fires will give you a good start to your fire management endeavors.
 - A fire has to be started by a heat source. It can be a natural source, like lightning, or a human-generated source, such as campfires, sparks or cigarette butts.
 - The fuel for a forest fire is generally dry grass, leaves, moss, shrubs and/or pine tree needles. These fine sources of fuel burn quickly and require less energy to burn than larger sources like full, live trees.
 - Sufficient oxygen must be present to sustain a fire, so when winds come through, they not only spread the fire to other fuel sources but also bring in fresh oxygen to keep the fire going.
- 2 Take a course in fire science.** Though you must be brave and courageous to fight a fire, you also must know the science behind what's going on to successfully fight it. Knowing how fire behaves and the meteorology and geography of the area will make containing the fire easier.
 - Contact your local colleges, universities, local fire departments and national parks. The firefighters in your city or staff at a local wildlife area may offer tutorials on firefighting and prevention.
- 3 Study the weather.** How intense a fire gets and how fast it can spread is directly related to wind speed, temperature and relative humidity. Other, severe conditions (like drought) can also play a role in the strength and number of wildfires in an area. Accurate and timely weather information is vital to the planning and execution of strategies for suppressing wildfires.
 - In the US alone, there are many different versions of the scales measuring fire potential. The ERC scale (Energy Release Component) relates fuel energy potential to an area, the Burning Index measures flame length against fire speed and temperature, the Haines index relies on stability and air humidity, and the Keeth-Byrun Drought Index works in the abstract, taking in a fuel's likelihood to burn and at what percentage.^[1]

Method
2

Tactics

- 1 Fight fire with fire by creating a fireline.** This is the objective of most agencies as it contains the fire immediately, preventing spreading and future damage.
 - Sometimes the easiest and fastest way to fight a fire is to do a controlled burn around the perimeter of a forest fire. A controlled burn will allow you to cut off the fuel source of the larger fire by already burning off the dry plants, thus stopping the spread of the fire.
 - Take note: embers fly. Even if you do have a fireline constructed, the wind may carry smoldering embers that can move the fire and exacerbate the problem.
 - In this situation, you are removing the fuel component of the fire, and this method is considered an indirect attack on the fire.

- 2 Use water as a fire suppression tool.** Nature's way is still the best way and it probably always will be. It removes the fuel source by making it too moist and can suppress oxygen to the flames.
 - When fire crews arrive at a forest fire, they set up power pumps at the closest water source that they can find and then they run their hoses to the fire. Or it may be brought in via tanker or helibucket.
 - If you are by yourself or with your family and not with a professional fire fighting team, make every effort to control a fire with water available so as not to spread the flames and create a larger fire. However, if the fire grows even the slightest bit, call the fire department and **evacuate immediately**.
 - A fireline can also be created with water, soaking up the perimeter of the fire, preventing future spreading.

- 3 Consider suppressant foam.** if you are part of a fire management agency in your area or can get a hold of one, consider this alternative to water, which may be in short supply.
 - Whether you use an aerial or a ground application, suppressant foam can help you extinguish your fires faster by acting as an insulated barrier to keep unburned fuels from being ignited.
 - The bubble structure of the foam also gives you a slower, more controlled water drainage, which helps you penetrate better and longer into the fuel sources.

- 4 Take advantage of natural barriers to help you fight fires.** Areas like rivers, lakes, roads, swamps and rocky areas can be a natural ending spot for a fire so that you can concentrate on tackling other sides.
 - All fire suppression activities are based from an anchor point, often one of these spots. The likelihood of the fire reaching this area is less than average, providing a place firefighters can stay for an extended period of time.

**Method
3****Prevention**

- 1 Note the warnings in your area.** The National Weather Service has great technology that detects when fires are likely to occur and if they've already started, how they'll behave. If you're out camping, take note of any warnings issued or fire forecasts for your area.
 - *Red Flag Warning:* This is issued when existing environmental conditions (aridity, etc.) combined with expected weather conditions could result in fires starting within the next 24 hours.
 - *Fire Weather Watch:* This is issued when Red Flag conditions are expected to arise within the next 3 days.
 - National Fire Danger Rating Forecasts are point forecasts issued for selected observation sites. These forecasts are used as input for the National Fire Danger Rating System which generates indexes which are used in determining fire danger for a given area and to plan for the necessary human and other resources needed to fight wildfires.

- 2 Don't light grass fires or burn debris.** Contact your local fire department in advance to confirm that burning is allowed and to find out whether a permit is required to burn debris.^[2] If it is, follow these standard guidelines:
 - Check the weather forecast. If it is particularly windy in your area, it may not be advisable to start any type of fire.
 - Prepare the site correctly. The ground around the burn site should be surrounded by gravel or mineral soil (dirt) for at least ten feet in all directions. Keep the surrounding area watered down during the burn.^[2]
 - Remain with your fire. Stay with it until it is *completely* out. To ensure the fire has been completely extinguished, drown the fire with water, turn over the ashes with a shovel and drown it again. Repeat several times.^[2]

- 3 Exercise campfire safety.** Having a bonfire can be an absolute blast, but if done unsafely, can result in serious damage. Make sure to exercise logic and caution when having a campfire.
 - Do not build a fire at a site in hazardous, dry conditions. *Do not* build a fire if the campground, area, or event rules prohibit campfires. If there is not an existing fire pit, and pits are allowed, look for a site that is at least fifteen feet away from tent walls, shrubs, trees or other flammable objects. Also beware of low-hanging branches overhead.^[3]
 - Clear a 10-foot diameter area that's downwind around the site. Remove any grass, twigs, leaves and firewood.

Also make sure there aren't any tree limbs or flammable objects hanging overhead. Circle the pit with rocks.^[4]

- If you do not have water, use dirt. Mix enough dirt or sand with the embers. Continue adding and stirring until all material is cool. Remember: do NOT bury the fire as the fire will continue to smolder and could catch roots on fire that will eventually get to the surface and start a wildfire.
 - Remember: If it's too hot to touch, it's too hot to leave!^[5]

4 Perform regular equipment maintenance. Today, most mechanical devices come with built-in safety tools. Spark arrestors are used to destroy exhaust particles released from combustion engines before they can wreak any havoc. However, if they're not working properly, using the machine could be dangerous, releasing sparks into a dry, grassy area, starting a fire inadvertently.^[6]

- Multiple position small engine (MSE) arrestors are used for handheld equipment like saws and blowers. General purpose (GP) arrestors are used for immobile engines -- tractors, motorcycles, etc.^[6]

Community Q&A

Is a forest fire too hot to be stopped by water near a house, and what is the temperature of the fire?



Not at all! Depending on how big the flames are, you might need a lot of water, but if your flames are 15 feet or smaller, a good garden hose will do. Just be sure to spray the base of the flames. Depending on the color of the flames, the temp can range from 150 - 400 degrees.

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Tips

- When putting out a campfire, pay attention to the red *and* black embers. Both should be wet and cold upon leaving.
- Make sure that you have secured your fire line by making it deep enough. A thin fireline may be too close to the next fuel source, and it only take an ember to jump the line to start an additional fire.

Warnings

- Do not fight a forest fire yourself. Call the appropriate emergency team if you are in an area and a fire begins. Evacuate immediately.

Sources and Citations

1. http://en.wikipedia.org/wiki/Wildfire_suppression
2. ↑ ^{2,02.12.2}<http://www.smokeybear.com/debris-burning.asp>
3. <http://www.smokeybear.com/pick-your-spot.asp>

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