



In this Issue:

Human-caused Fires

Determining Fire Cause

Eight Things Everyone Should Know about Wildfires

Prevention Blog

At Coastal

Weather

To obtain copies of the FireSmart Homeowner's Manual to share with your community go to: <https://firesmartbc.ca/resource-ordering-form/>.

Human-Caused Fires

Human (cause): Any wildfire caused as a result of human action or activity.

A human-caused wildfire is any wildfire that results from human activity. People can start wildfires in numerous ways, either accidentally or intentionally. Unlike many natural disasters, most wildfires are caused by people and could have been prevented. In the Coastal Fire Centre, about 60% of the fires since April 1, 2019 have been human-caused.

One of the few advantages of dealing with human-caused wildfires is that they generally occur in areas where other people are present, so these fires are usually detected quickly and generally contained more easily than fires in more remote locations. On the other hand, naturally caused fires (sparked by lightning, for example) can burn for hours before they're detected.

The threats that a human-caused wildfire poses to human safety and property make it a major concern for the BC Wildfire Service. There are several reasons why it's important to determine what caused a wildfire, including:

1. The preparation of an effective fire prevention program is based in part on accurate "fire cause" statistics. This helps the BC Wildfire Service share relevant information with the public and inform them of the dangers associated with specific activities.
2. Determining the cause of a wildfire helps the government pursue criminal and/or civil prosecution of people suspected of violating wildfire-related legislation. It is important to identify who (or what) was responsible for a wildfire starting, so the actions of the people responsible can be corrected or the individual can be charged.
3. Another important consideration is "cost recovery", related to damages and fire suppression costs. Once it's been determined that an individual or entity is responsible for damage resulting from a wildfire, it is important for them to be held accountable.

One of the most common causes of preventable wildfires in the Coastal Fire Centre is open burning that's not done correctly or safely. This type of fire use may involve the burning of wood, slash, garbage, stubble, right-of-way vegetation, or other types of controlled burning. The risk associated with the use of fire increases when there's a possibility of the

wind picking up or shifting direction, or when fuels in the area are really dry. That's why it's mandatory for any open fire to be monitored closely and extinguished completely.

The "open fire" category of fire causes includes wildfires started by campfires and larger burn piles, regardless of whether the activity was prohibited at the time. For example, consider a situation where a Category 2 open fire prohibition is in effect and someone builds what they consider to be a campfire, but the fire is larger than the legal campfire limit of 0.5 metres wide by 0.5 metres high. If that fire escapes and starts a wildfire (or is found abandoned), it would be included in the "open fire" category of wildfire causes.

Human-caused wildfires are preventable because they are generally the result of human error. Take a few moments to think about the potential results of your actions if conditions should change (e.g. increased winds) and take precautions to decrease the likelihood of a wildfire starting.

Once it is suspected that a fire is human caused, 3 questions are asked:

1. **For what purpose was that individual in the forest?**
Forest industry, Railroads, Other industry, Recreation, Resident, Incendiary, and Human— Other
2. **What activity was the individual involved in?**
Operations—forestry, Operations—rail Operations—industry operations, Open Burning, Smoking, Structure Fire, Other Activity, Arson and Mischief
3. **What was it about the activity that actually caused the fire?**

This section includes the most specific information as the device or material which ignited or became involved in the fire will be highlighted here. For example, when determining if the fire was caused due to 'Fire Use—Escape' it is up to the person who is investigating the fire to determine if the device or cause was an Air Curtain Burner, Barbeque, Bonfire, Burn Barrel, Incinerator, Outdoor Stove, Portable Fire Ring, Sky Lantern, Tiki Torch or some other device or method.

Determining Fire Cause

All wildfires in British Columbia are investigated to determine "fire origin and cause". Determining the origin and cause of lightning-caused wildfires (such as when lightning strikes a tree directly) can be relatively straightforward, but determining other wildfire causes can involve extensive and complex investigations. Until the cause of a wildfire has been investigated and confirmed, the BC Wildfire Service will usually report the cause of that fire as "under investigation" or (in the interim) indicate the suspected cause of the fire.

From the moment that a fire origin and cause investigator is assigned to a fire, he or she goes right to work. The investigator's responsibilities include observing and recording information about any people and/or vehicles at or near the fire site. The investigator also identifies any potential witnesses, records weather data, identifies the general area of fire origin, identifies and protects any physical evidence at the scene, and photographs the scene and the surrounding area.

Identifying and protecting a fire's point of origin is of primary importance for any fire investigator. Learning where the fire started could lead to finding out why the fire ignited and who was involved. When a fire starts, it will burn outward in a circular fashion until wind, the slope of the land, or the type and amount of available fuels begin to influence its spread. Once these factors come into play, the fire will often burn in one general direction faster than in other directions. This will influence the fire's general shape or "personality".

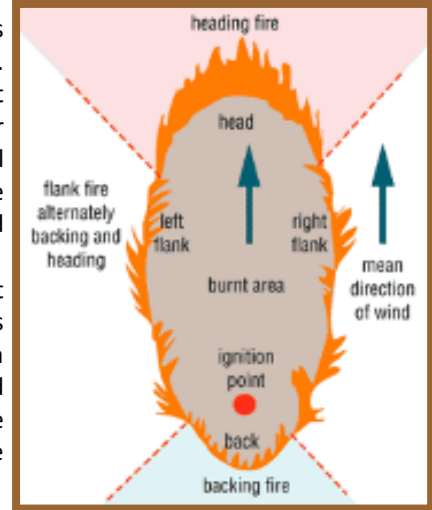
Fire investigators must have a strong grasp of how topography (the land's slope, aspect and shape) affects how and where a fire will burn. They also need to understand how weather can affect a fire's behaviour. For example, wind is the most important factor influencing fire behaviour and spread, and wind speed can affect the shape of the fire.

A fire will typically burn outward and uphill in a V-shaped or U-shaped pattern. The point of origin will normally be at the bottom of the "V" or "U", and relative humidity will affect how the fire burns. The fire will form an advancing area ("head"), a backing area ("heel") and two areas of lateral spread ("flanks"). Advancing areas are characterized by greater intensity, faster rates of spread and more noticeable damage. The backing areas are characterized by

less intensity, slower rates of spread and less damage. The flanks usually exhibit fire behaviour characteristics that fall between those of the advancing areas and backing areas.

Other indicators that help investigators determine the origin of a fire are the fire-damaged fuels themselves. Fire direction indicators include the following:

1. when a tree is burning near a slope the angle of char in the tree can tell you which direction the fire burned.
2. deep charring on one side of objects that face the oncoming fire (the opposite sides will be "protected" and show less damage)
3. "foliage-freezing" that is consistent with wind direction (see photo),
4. grass stems when completely consumed by fire will also react like larger trees and grass stems in the backing area of the fire will point towards the fire's origin



Foliage Freezing

All fire crew personnel are taught to look for fire cause signs, to observe and document any people or suspicious activities in the area, and to secure the suspected point of origin until a certified fire investigator arrives at the scene.

Once on site, a fire investigator gathers the information already recorded by the crews on site, verifies the fire weather conditions, and collects and records any evidence (particularly in the area of the fire's origin). When building a case, the investigator must base all of his or her findings on hard evidence and be prepared to explain or defend any conclusions in a court of law.



Eight Things Everyone Should Know about Wildfires

1. Although natural phenomena can certainly cause wildfires (such as lightning), a NASA study states that 84% of all wildfires worldwide are caused by human carelessness.
2. Hot and dry conditions increase wildfire risk. However, windy conditions have the biggest influence on a fire's growth. Wind dries out fuels, making them more susceptible to burning. It also feeds the fire with oxygen (a necessary component of combustion), pushes wildfires forward and helps spread embers. Weather patterns cause hot air to move upslope during the day, adding to the "slope effect" of a wildfire moving more swiftly uphill. As fire consumes oxygen, that burning essentially creates a partial vacuum, so more air from the surrounding environment is sucked toward the fire. Very large fires can even create their own weather — including strong winds.
3. Putting water on a fire is not the only way to extinguish it. Fire needs three things to exist: fuel, oxygen and heat. Adding water to a fire will help cool the fire and effectively remove heat from the equation. One best practice is to create a "blackline" (ashes will turn from grey to black when they get wet) along the perimeter of the fire to stop its spread. Another key strategy in fire suppression is to remove fuel or reduce the amount of fuel available to burn. This can be done by creating fuel-free containment lines, removing trees, digging down to the mineral soil, or using controlled burning to consume the available fuel prior to the wildfire reaching the site. Oxygen can be removed from the equation by smothering the fire with a surfactant, or by temporarily burying the fire with mineral soil.
4. Fire is not always bad for the environment. A "prescribed" fire, for example, is lit during optimal conditions and can be used to achieve specific objectives. Fires can also help curb pest populations, purge non-native and invasive plant species, reduce future wildfire severity by removing susceptible fuels, provide nutrients and create openings in the forest canopy to allow sunlight to more easily reach the plants that remain after the fire has passed through. Some animals can benefit because fires change the landscape of an area and, along with those changes, feeding and hunting habits. The diversity of plants after a fire provides many beneficial services to wildlife.
5. Just because a fire isn't visibly spreading along the ground, that doesn't mean it's extinguished. It could still be burning underground (a "subsurface" fire) where decaying organic material such as roots or peat can keep it burning for months. This situation presents a serious risk, since a fire that was considered to be contained and "out" in the summer could theoretically survive underground through the winter and flare up again when conditions become hot and dry again in the spring. That's why the saying "aircraft don't put out fires — crews do" is so true, and also why thermal imaging has become such an important tool for firefighters. A fire is not out until it is dug up and the ashes are cold to the touch.
6. Fire retardant is used to slow a fire, but it can't extinguish the fire by itself. Fire retardant is mostly a mixture of fertilizer and water that is designed to coat vegetation and slow the spread of the fire. Retardant is typically coloured red with an iron oxide (rust) mixture to increase its visibility for air crews and ground personnel.
7. Fire tornadoes (also known as fire whirls, fire devils or firenadoes) are terrifying things. They are formed when hot, dry air rises from the ground at a rapid rate. These often occur during wildfires and can spread the fire when it was previously thought to be contained.
8. Animals of all kinds know how to stay safe when a wildfire approaches, escaping or otherwise seeking refuge. Birds fly away, mammals run off, and smaller creatures take cover by burrowing under the ground or seeking shelter amongst rocks.

Prevention Blog

Hello Everyone,

I can honestly say that recent rainy days in the Coastal Fire Centre have been a welcome relief from a wildfire prevention perspective. Anytime we receive precipitation during the summer months, it obviously helps the wildfire situation, but this rain was especially welcome when you consider how dry this spring had been.

Most weather stations are now recording seasonally normal indices levels, although it will only take a short period of dry weather for the fire season to become more active. One of the issues that we commonly run into during the current weather pattern is that people tend to let their guard down when it comes to wildfire safety.

For example, we commonly come across fires that have spread because campers either didn't fully extinguish their campfires or left them unattended. Many times, this is because it was wet when they packed up and left their campsite, but they didn't realize that it only takes a few hours of sunshine to dry out the surface layer of light fuels. Combine this with the fact that the larger and deeper fuels have remained dry, and you have a situation where BC Wildfire Service crews have to respond to wildfires caused by escaped campfires during periods of low or moderate fire danger.

Please remember to do your part and make sure that your fire is completely extinguished — regardless of the weather — by digging it up and ensuring that the ashes are cold to the touch.

Thanks, Alan Berry, Senior Wildfire Officer—Prevention

Fires to Date Since April 1, 2019

Total	96
Lightning	32
Person	64

Number of fires since June 28, 2019

Total	24
Lightning	16
Person	8

Fire Danger Rating today



Current Prohibitions (within BCWS jurisdictional area)

Category 2 Open Fire Prohibition throughout the Coastal Fire Centre's jurisdictional area.

Campfire and Category 3 prohibitions are being considered, but not implemented yet.

Go to BCWildfire.ca for the latest information.

At Coastal

With the downturn in weather the number of fires that are being reported is declining. Unstable conditions remain, however, and is expected that there will be additional convective activity over the coming days.

Despite the showers that have occurred two pockets of moderate remained. One is on Vancouver Island in the Parksville area, and the second is Haida Gwaii.

There is no campfire prohibition in effect but we would like to remind everyone that you are responsible for whatever you light. Please remain cautious and be aware of your surroundings. Despite the rain there are some localized areas that have not received any precipitation.

On the public map there are 8 active fires listed at this time. 4 of those fires are 'Under Control' and 4 are 'Modified Response'. Modified Response fires are generally at high elevations and in remote locations. When a fire is deemed to be a modified response fire it is with the support of the land manager and with specific trigger points laid out; once the fire hits those trigger points, or fire behaviour increases, a different response may be necessary.

The 1-800 Reporting Line answered 28,106 calls from April 1 to September 25, 2018.

The busiest day in July: 1,444 calls on July 17th

The busiest day in August: 1,517 calls on August 11th



Weather

ISSUED: 12:45 PDT Friday July 12 2019

SYNOPSIS: A gradual warming and drying trend continues throughout most inland and eastern sections of each zone today under a mild southwesterly flow aloft while cloud and isolated showers remain more common throughout western/upslope areas. Scattered convective showers favour the Mid Coast this afternoon with a 30% chance of isolated thundershowers. Isolated convective showers (risk of a thundershower) continue into the evening across the north, easing near midnight. Full recoveries in all areas & elevations by Saturday morning with a risk of patchy fog & low cloud. A more unstable southwesterly flow aloft gains control on Saturday bringing elevated inflow or southwesterly winds in the afternoon along with a greater risk of thundershowers extending westward & southward to include parts of each zone. Otherwise, a trend towards a bit more sun should be seen over low-lying areas of the east Island and the inland valleys of the Mainland to

bring slightly higher temperatures and slightly lower humidities than Friday.

OUTLOOK: An onshore flow remains in control over the region Sunday, Monday, and Tuesday, preventing a significant change in the large-scale airmass over the region through the outlook period. Temperatures should remain near or slightly above seasonal each day (low to mid twenties) with humidities in some mainland valleys potentially dipping to the 22% to 25% range each afternoon; more likely above 25% throughout inland valleys of the Island. Elsewhere, humidities struggle to get much below 30% in most areas each afternoon. Light to locally moderate inflow/onshore winds should dominate each afternoon as isolated showers continue to favour upslope areas & higher terrain, especially north of Port Alberni – Bute Inlet. Increasing chance of Haida Gwaii picking up 5-10mm of rain Tuesday or Tuesday night.