# Topic 2: Basic Terminology

## Topic introduction

**Arming yourself with the knowledge of basic wildland fire fighting terminology should be your first positive step to success in your firefighter training. You’ve had good exposure to the basics in the Introduction to Wildland Fire Behavior (S-190) course, but until you know the fundamentals like the back of your hand, we want to take you back through a quick review of some key concepts.**

**This topic covers foundational wildland fire fighting knowledge including:**

* **Parts of a wildland fire**
* *Fire behavior* **terminology**
* **Additional useful terms and concepts**

**Go ahead and take a read through to refresh your memory. In this case, it’s a matter of sound mind, sound body.**

Narration Script: Your firefighter training doesn’t start in the field but rather upstairs, and we mean between your ears. Even the most experienced of wildland firefighters will turn to their trusty Incident Response Pocket Guides and Fireline Handbooks to refresh themselves on the all- so-important basics. In this topic, we’ll take you back to the Introduction to Wildland Fire Behavior course and explore some familiar terms. Your goal should be to take the somewhat familiar and make it the “know-it-like-the-back-of-my-hand” type.

## Parts of a wildland fire

**Part of “talking the talk” is having a diverse wildland fire fighting vocabulary. All firefighters working on wildland fires will use certain terms, and you need to be “in the know.” In this section, you’ll learn about the parts of a wildland fire. These parts are named for their unique characteristics and locations.**

**Some of the most common names you’ll hear associated with the main fire are:**

* **Origin**
* **Head**
* **Fingers**
* **Pocket**
* **Perimeter**
* **Rear**
* **Flanks**
* **Islands**

**Read the following to refresh your knowledge of the lingo.**

**Origin**

**The *origin* is the area where the fire started. It is also the point from which the fire spreads, depending on the fuels present and the effects of wind and slope.**

**When the fire is human caused, you often find the origin next to a trail, road, or highway, but a lightning strike or campfire can result in a very inaccessible point of origin. Protect the area of origin for subsequent investigation of fire cause whenever possible.**

**Head**

**The *head* is the part of a wildland fire with the greatest forward rate of spread (ROS). Because wind and slope affect the rate and direction of spread, the head is normally either on the edge of a fire opposite to the direction from which the wind is blowing or it is toward the upper part of a slope.**

**The head of a fire often burns intensely and may move with alarming speed. Some large fires may have multiple heads. Ultimately, you have to control the head(s) and prevent the formation of new heads to suppress a wildland fire.**

**Fingers**

***Fingers* are typically long, narrow strips of fire that extend from the main body of a fire. They form:**

* **When a fire burns into mixed fuels; slowing in heavy fuel, but spreading quickly in light fuels**
* **Due to variations in terrain or wind direction**
* **When the head is split by natural features such as fields, water, or rock outcroppings**

**Caution—uncontrolled fingers may form new heads. If possible, knock them down when they’re small and manageable.**

**Pocket**

**A *pocket* is the unburned area between the main fire and any fingers. Perimeter**

**The *perimeter* is the outer boundary—or the distance around the outside edge—of the burning or burned area. Also commonly called the *fire edge*, don’t confuse the perimeter with the *control line* (an inclusive term for all constructed or natural barriers and treated fire edges used to control a fire) or *fireline* (the part of the control line that is constructed by firefighters). Obviously, the fire’s perimeter continues to grow until you get it controlled and extinguished.**

**Rear**

**The *rear* or *heel* of a wildland fire is the end opposite the head—that is, relatively closer to the point of origin than to the head. Because fire at the heel usually burns *into* any prevailing wind, it generally:**

* **Burns with low intensity**
* **Has a low rate of spread (ROS)**
* **Is generally easier to control than the head Flanks**

**The *flanks* are the sides of a wildland fire, roughly parallel to the main direction of fire spread. Flanks are identified as either left or right as you are looking from the heel of a fire toward the head. Control flanks as soon as possible, because:**

* **A shift in wind direction may quickly change a flank into a head.**
* **Fingers often extend from flanks. Islands**

***Islands* are unburned areas inside the fire perimeter. Because they are unburned potential fuels, patrol them frequently and check for spot fires.**

**Islands close to a control line *may* flare up later and start spot fires across the control line. You may want to burn islands out, consuming fuels between the perimeter (fire edge) and the control line.**

Narration Script: Every profession has its jargon. You need to learn and use the correct wildfire terminology the same way a doctor or paramedic uses special terms to describe the human body. Of course, there are a few other terms that we’ll get to in a moment, but these are the main ones you’ll use to describe a fire.

## Additional wildland fire terms

**A few other common terms relate to the perimeter (***fire edge***) and what’s inside and outside the edge. A few more terms are:**

* **Spot fire**
* **Slopover**
* **Green**
* **Black**

**You will investigate each of these terms on the pages that follow.**

Narration Script: One of the most common bits of advice you’ll hear on the fireline is to “get in the black.” If you don’t know what that means, you’re putting yourself and others in unnecessary danger. So get in the black, and learn a few more common wildland fire terms.

## Spot fires

**Spot fires are small fires burning beyond the main fire boundary. As gases rise from a fire into the** *convection column***, sparks, embers and burning twigs are carried aloft. Spot fires result as these hot and burning items fall back to the ground or are blown across a fireline by winds. Spot fires can also result when embers or burning** *fuels* **roll downhill across the fireline into unburned fuels beyond the main fire.**

**If spot fires burn unchecked, they may form a new head or another major fire. If this happens, firefighters could be trapped between two fires or the fire may move in an unanticipated direction.**

Narration Script: Depending on the size of a wildland fire as well as weather conditions and the type of fuels involved, spot fires can ignite miles from the main fire. That would make your job a little harder, wouldn’t it? And there’s not much you can do about it. On a smaller scale, you can help control spot fires by being vigilant and building appropriate control lines, which you’ll learn about in just a bit.

## Slopover

*Slopover* **occurs when fire crosses a control line or** *natural barrier* **intended to** *contain* **the fire. Slopover and spot fires differ mainly in their location relative to the control line:**

* **Slopover occurs immediately across and adjacent to the control line.**
* **Spot fires occur some distance from the control line.**

## The green

**Any area that’s not burnt—but is adjacent to an involved area—is called the green*.* Fuels in the green may be:**

* *Live fuels***, including:**
	+ **Vegetation with a high** *moisture* **content that is relatively slow to ignite**
	+ **Vegetation with lower moisture content and that is highly flammable**
	+ **Dense, golden-yellow annual grasses and other similar fuels with low moisture content that may burn vigorously**
* *Dead fuels***—dried vegetation that is highly flammable and will go up like kindling**

**The term *green* certainly does *not* define a safe area. It is simply the opposite of the black, or burned, area. The edge of the green is usually where you construct a control line.**

Narration Script: Don’t get hung up on colors here. While the term “green” may refer to the color of some fuels in an area, the “green” may not be green at all. If you’re in a stand of dead, leafless oak trees with lots of forest debris, you better realize you’re in the green. And if you’re looking at an active fire, you better realize you are not safe—it’s as if you are standing in a pile of kindling!

## The black

**The opposite of the green—the *black* or the *burn*—is the area (including both** *surface* **and**

*aerial fuels***) in which the fire has consumed, or “blackened,” the fuels.**

**Whether the black is safe or not depends on a few factors. If it is completely burned over and little, if any, unburned fuel remains, the black is a relatively safe area during a fire. However, the black is not always safe.**

**Hazards of the Black**

**The black, or burn area, may not be safe for a few reasons:**

* **In steep terrain, exposure from adjacent unburned fuels can cause reburn**
* **Residual heat and smoke**
* **Hot spots and smoldering snags (standing dead trees), stumps, and downed trees**
* **Falling snags Warning—Reburns**

**If a surface fire leaves aerial fuels more or less intact in the black, or vice versa, a reburn can occur when burning conditions are more favorable—for example, if the winds shift or humidity drops. This often occurs when fire moving quickly through an area fails to consume all fuels.**

Narration Script: In many cases, getting into the black is a good safety move. But you’ve got to be smart about it. The black has its own hazards that can get you even if the main fire front doesn’t.

## Fire spread

**You know how to describe the parts of a fire. Now, you also need to master terms describing the behavior of the fire itself. The terms you’ll learn about here refer mostly to how the fire *spreads*.**

**Fire spread is simply the movement of the fire, classified as** *rate of spread* **(ROS) and given in chains per hour. A chain is a surveying term and equals 66 ft. (20 m).**

**A good rule of thumb is to watch the fire spread for a minute. Since there are 60 minutes in an hour and just over 60 ft. (18 m) in a chain, using the rule of thumb will give you a reasonably accurate measurement of the fire’s forward progress. For example:**

**1 ft. (0.3 m)/minute = 1 chain/hour**

**10 ft. (3 m)/minute = 10 chains/hour**

Narration Script: “Fire Behaving Badly” is not a TV series, but it is something you may be forced to watch on the fireline. Now that you know how to describe the parts of the fire, you also need to master some terms about the behavior of the fire itself and how it spreads.

Since there are 60 minutes in an hour and just over 60 feet in a “chain,” if you watch the fire for a minute you can estimate the number of “chains per hour” it is spreading. For example, if the fire moves 1 foot per minute, then it is moving at a rate of 1 chain per hour. And if the fire moves at 10 feet per minute, then the R-O-S is 10 chains per hour.

## Fire behavior terms

**So, what are the terms you need to know about that deal with fire spread? We’ll take a look at these terms in the next few pages:**

* **Smoldering**
* **Creeping**
* **Running**
* **Backing**
* **Spotting**
* **Torching**
* **Crowning**
* **Blowup**

**You’ll notice a pattern with some of these terms. Smoldering generally refers to smaller fires, while crowning may appear on large, out-of-control fires. The ones in the middle refer to fire spreads somewhere between those two extremes.**

Narration Script: From smoldering fires to crowning fires and everything in between, you need to be familiar with the terms that describe how a fire is spreading.

## Smoldering and creeping fires

**Two terms refer to fires that are spreading very slowly:**

* **A *smoldering* fire is one that burns without a flame and is barely spreading**
* **A *creeping* fire burns with a low flame and spreads slowly**

## Running and backing fires

**A *running* fire is one that spreads rapidly with a well-defined head. Compare and contrast this to a *backing* fire, where the fire moves *away* from the head, downhill, or against the** *wind***.**

Narration Script: A running fire is one that spreads rapidly with a well-defined head. This type of fire can overrun anything in its way in a few seconds.

## Spotting

**A fire is *spotting* when sparks or embers produced by the main fire are carried by winds or a convection column. Obviously, spotting causes spot fires in advance of the fire’s head.**

Narration Script: Sometimes fires have winds and convection columns that carry sparks and embers ahead of the fire, starting spot fires in advance of the fire head.

## Crowning and torching

**A fire is *crowning* when it advances across the tops of trees or shrubs more or less independent of the** *surface fire***. Crown fires are sometimes classed as *running* or *dependent* to distinguish the degree of independence from the surface fire. Use the terms *crown fire* and *crowning* carefully because they describe a very serious fire situation.**

**A term commonly confused with a crowning fire is a *torching* fire. Unlike a crowning fire, a torching fire periodically ignites the crown of a single or small group of trees or shrubs before returning to the surface. A torching fire is not as serious as a crown fire.**

Narration Script: A crowning fire burns largely at the tops of the trees rather than on the surface. This is a very serious fire condition.

## Blowup

**A *blowup* occurs when there’s a sudden increase in ROS sufficient to prevent or rule out direct** *control* **of the fire. A blowup will most likely be a setback to existing** *suppression* **plans. A *flare-up* is any sudden acceleration in the ROS or intensification of the fire. Unlike blowup, a flare-up is of relativity short duration and does not radically change existing control plans.**

**Keep your eyes open because:**

* **Blowups and flare-ups can occur on smaller fires or on isolated portions of large fires.**
* **Most fires are innocent in appearance before blowups or flare-ups occur, such as fires in the** *mop-up* **stage.**
* **Flare-ups generally occur in deceptively** *light fuels***.**
* **Blasts of air from low-flying helicopters and** *air tankers* **have been known to cause flare- ups.**

Narration Script: Blowups are a big deal—they can be deadly. Flare-ups are a common occurrence and don’t often require firefighters to change tactics.

## Knowledge Check 1

Sequencing—select the number from the pull down list to put the items in the correct sequence.

**Can you describe the ROS of a fire?**

**Place the following terms in order from the lowest ROS to the highest. Crowning**

**Running Smoldering Creeping Torching**

**The correct order is as follows: Smoldering**

**Creeping Running Torching Crowning**

## Additional wildland fire terms

**Just a few more terms to know and you’re on your way to bigger and better training concepts. Here are a few other common terms related to wildland fire fighting:**

* **Control line**
* **Fireline**
* **Anchor point**
* **Mop-up**
* **Class of fire**

**We’ll cover each of these terms in sequence.**

Narration Script: The terms we just described deal mostly with the fire itself. Now we’ll identify some terms mostly describing your fire fighting efforts.

## Control line, fireline, and anchor point

**The terms control line, fireline, and anchor point are closely related.**

* ***Control line* refers to all constructed or natural fire** *barriers***. It’s also used to describe the treated fire edges used to contain the fire.**
* **A *fireline* is any cleared strip or portion of a control line where flammable material has been removed by scraping or digging down to** *mineral soil***.**
* **The *anchor point* is any good place where you can start constructing a fireline. Generally, a fire barrier is a safe anchor point. Using an anchor point minimizes the chance of being outflanked by the fire while the line is being constructed.**

Narration Script: The terms control line, fireline, and anchor point are closely related, so let’s look at them together. The terms control line and fireline are basic to any discussion of attack methods, and they are often confused with the term “fire edge.” While “control line” refers to all constructed or natural barriers, “fireline” applies only when you are dealing with a portion of a control line where flammable material has been removed by scraping or digging down to mineral soil.

There are a number of other terms used in various regions to describe different types of lines. Among these terms are *wet lines*, *retardant lines*, *scratch lines*, *hand lines*, *dozer or Cat lines*, *hot lines*, *undercut* or *underslung* lines, *cold lines*, and *open lines*. As you can imagine, some of these terms actually describe a “control line” instead of a “fireline” and indicate both the line’s method of construction and its width.

When you start building a fireline, however, it must always be started from an “anchor point,” such as a road, lake, pond, stream, earlier burn, rock slide, or cliff. This type of barrier provides a safety point for you that will keep you from getting outflanked by the fire.

## Mop-up

**If you hear the term *mop-up,* it’s a good thing. It means the end of the fire is near. The mop-up phase marks the final extinguishing of a fire after it has been completely surrounded by control lines. But always be on the ready—blowups and tragedies have occurred in the mop-up stage.**

**During mop-up, you will extinguish all smoldering material within a specified distance from the control line as conditions indicate. Mop-up must be thorough because a small spark or flame left along the line could rekindle hours or days later, starting another and perhaps larger fire.**

## Class of fire

**To tell one type of fire from another, firefighters classify them from *A* to *G*. Class A—0 to 0.2 acres (0 to 0.1 ha)**

**Class B—0.3 to 9.9 acres (0.2 to 4 ha)**

**Class C—10 to 99.9 acres (4.1 to 40.4 ha)**

**Class D—100 to 299.9 acres (40.5 to 121.4 ha)**

**Class E—300 to 999.9 acres (121.5 to 404 ha)**

**Class F—1,000 to 4,999.9 acres (405 to 2,024 ha) Class G—5,000 acres (2,025 ha) or more**

**Don’t be too worried, you don’t have to memorize this. Just be aware, a class *A* fire is the smallest fire and class *G* is the largest.**

Narration Script: Some fires simply have more class than others. When you hear the term “Class A” fire, that doesn’t mean it’s a good fire, just a small one and that’s not as good as no fire at all.

## Knowledge Check 2

Matching—select the match you choose from the pull down list.

**You are called to work on a Class G fire and need to know your stuff. Match each term with the MOST appropriate description.**

**Control line Fireline Anchor point Mop-up Green**

**Black**

**The correct matches are as follows:**

**Control line: Refers to all constructed or natural fire barriers Fireline: Involves removing flammable material down to mineral soil Anchor point: Minimizes the chance of being outflanked by the fire Mop-up: Begins after a fire has been completely lined**

**Green: Refers to an area that is not burnt**

**Black: Contains hot spots, smoldering snags, stumps, and downed trees**

## Topic conclusion

**In this topic, we gave you a quick refresher on some basic wildland fire behavior concepts and principles. We looked at:**

* **Parts of a wildland fire**
* **Fire behavior terminology**
* **Additional useful terms and concepts**

**Knowing the key terminology used by other wildland firefighters will help you communicate more effectively when the time comes.**

Narration Script: Fire is fire whether it’s in the woods or inside a building. The woods just give it a little more elbow room, an endless supply of oxygen, and an abundance of fuels. And that means you need to understand the parts of a wildland fire and know how to communicate what you’re seeing. So make sure you are able to communicate and understand all these terms in your wildland vocabulary.