Using water bombers, and fire itself, to stop Alberta's wildfires

By Emine Saner, The Guardian, adapted by Newsela staff on 05.12.16
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Flames flare up from hotspots from a wildfire along a highway to Fort McMurray, Alberta, Canada, Sunday, May 8, 2016. Photo: Ryan Remiorz/The Canadian Press via AP

Just over a week in, the wildfire that is ravaging Alberta, Canada, has already burned 600 square miles of land and 20 percent of the houses in the city of Fort McMurray. All its 88,000 residents have been evacuated.

The flames did not spread as much over the weekend as had been feared. In fact, one government official said firefighters may be turning a corner in the fight against it. But how do you put out a wildfire as large and intense as the one that is ravaging Alberta?

Difficulty Fighting It At The Source

Bruce Malamud, a professor of natural and environmental hazards at King's College in London, England, says, "To stop a wildfire, you need to remove one of the following: the heat of the fire, the fuel that feeds the fire [such as vegetation] or the oxygen that allows the combustion to take place," where combustion is the chemical process by which fire is ignited.

Fire can spread a large distance away from the fire-front by burning embers carried on the wind, which then start other fires elsewhere. You can prevent the fire from spreading in certain directions, says Malamud. However, this requires resources such as starting prescribed burns, using fire suppressant, or water bombers.

John Thomson, a manager with Scotland's forest service, says that wind, fuel, and the slope of the land are all vital factors. “You can’t do very much about the first one,” says Thomson. “The firefighters in Alberta will be paying attention to weather conditions. In an ideal world, the wind would force the flames back on to ground that has already been burned.”

Stopping The Wildfire From Spreading

Fuel – tinderbox-dry vegetation on the ground and the trees themselves – can be managed in several ways, such as bulldozing it out of the way or starting controlled fires to burn it off so it can’t feed the main fire. The surface shape of the land can help.

“Fires burn much more aggressively going uphill than they do downhill,” says Thomson. “You don’t want to try to fight a fire going uphill." Instead, Thomson says that firefighters will be looking very carefully at how to deploy on the downhill side of a slope.

In a fire that is still relatively small, and moving downhill, you can launch a direct attack. This can involve firefighters physically beating the flames out with special tools. “You would come in behind the fire, so you’re not face to face with flames coming towards you," Thomson says. "The ground has already been burned, so there’s no chance of the fire suddenly changing direction and overrunning your team. But what is far more likely in Alberta at the moment is an indirect attack – getting out in front of the fire and establishing fire control lines, using something like a highway or river course.”

Water bombers, planes that can dump vast quantities of water, aren’t just flying over the top of the fire and dousing it. They are also part of a careful plan, usually to wet vegetation ahead of the fire or along its sides to squeeze it in. “You’re not going to put that fire out just by dropping water on the top of it,” says Thomson.

Quiz

1 Which of the following details is MOST important to the development of the main idea?

(A) The flames did not spread as much over the weekend as had been feared.

(B) John Thomson, a manager with Scotland's forest service, says that wind, fuel and the slope of the land are all vital factors.

(C) This can involve firefighters physically beating the flames out with special tools.

(D) Water bombers, planes that can dump vast quantities of water, are not just flying over the top of the fire and dousing it.

2 Which of these sentences would be MOST important to include in an objective summary of the article?

(A) Firefighters in Alberta, Canada, are turning the corner in the fight against this blaze.

(B) John Thomson is one of several scientists who study the effects of wildfires.

(C) Water bombers do not seem like the most efficient way to fight fires.

(D) Firefighters have several options when considering how to stop a wildfire.

3 What is the MOST important reason why firefighters want to understand the land on which a fire is burning?

(A) in order to predict the likelihood that wind will affect their efforts to fight a fire

(B) so that they know what equipment to bring, in case the landscape is difficult

(C) to tell if the fire is going uphill or downhill, because a fire moving uphill is more difficult to fight

(D) because they need to know how much water to bring in order to put out the fire

4 How does the article develop its central idea, that there are different ways to fight wildfires?

(A) by explaining one scientist’s research on fighting fires

(B) by providing multiple examples of strategies that firefighters use to combat wildfires

(C) by comparing and contrasting two different firefighting strategies

(D) by offering the opinions of firefighters on different strategies