

# Beaver Creek Fire - July 27, 2016

## *Lessons Learned from a Changing Environment*

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Five weeks ago, crews responded to a wildfire 24 miles northwest of Walden, Colorado. From the very beginning, fire managers were concerned with the fire's potential because of the beetle-killed trees dominating the landscape. The sheer volume of standing dead and downed trees posed concerns regarding both firefighter access and safety as well as intense fire behavior that would challenge suppression tactics.

With downed trees littering the ground, fireline construction in most areas was impractical. More importantly, the amount of standing dead trees presented a danger to any firefighters

attempting to work in the forest. Other methods of firefighting were unsuitable, too. Even the air turbulence from a helicopter rotor was causing trees to fall, precluding crews from working with helicopters. Under the circumstances, a direct attack approach was deemed a tactic too risky and ineffective.

Fire managers choose between a variety of strategies when suppressing fires. As the name implies, direct attack is made directly on the fire's edge or perimeter. The flames may be knocked down by dirt or water, and the fire's edge is generally treated by a follow-up fireline.

Another direct tactic option is to construct fireline close to the fire's edge. The fuel between the fireline and the fire is then burned out or burns on its own to the established fireline. Direct attack generally works best on fires burning in light vegetation or on low intensity fires with short flame lengths because firefighters can still safely work close to the fire.

An alternate approach to direct attack is an indirect attack, accomplished by building a fireline some distance from the fire's edge. Firefighters then burn out the vegetation between the fireline and the edge of the fire. This tactic also uses natural and human-made

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*Left: A crew puts in a fireline ahead of the approaching fire.*



*Right: Trees weakened by fire present a serious risk to firefighters.*

barriers. Fire managers can choose the timing of the burnout, allowing them to take advantage of favorable weather conditions and available resources to maximize the benefits of the burnout. Indirect attack is generally used on hot fires with high rates of spread where direct attack is not possible.

Because of the extreme fire behavior exhibited early on in the Beaver Creek Fire, firefighters knew a direct attack would be both dangerous and ineffective. Fire personnel knew if they were going to save structures ahead of the approaching fire, they would have to use their limited resources to work around the homes first before considering strategies for engaging the fire itself. Firefighters removed fuels, wrapped buildings, laid hoses and sprinklers around the structures, and strategically burned out around buildings in advance of the fire. This point protection strategy was successful; despite the fire's intensity, no residential structures were burned. More

importantly, no firefighters were injured.

This same indirect attack approach has been necessary for much of the Beaver Creek Fire. Both local and incoming additional resources have seen and described unprecedented fire behavior that has dictated response options. Initial attack responders reported radiant heat from the fire could be felt from

a half-mile away. Under such conditions, each incident management team assigned to the fire has noted the complexity of this fire and the need to adjust strategies to keep firefighter safety in the forefront.

Personnel working the fire have used heavy equipment such as feller bunchers, skidders, and dozers to put in fuel breaks in



*A crew wraps a building as part of a structure protection plan.*

areas where they have anticipated fire movement and growth. Even this has proved to be challenging, as the fire has thrown embers up to a half-mile ahead of the main fire, creating spot fires that can ignite new areas. Spot fires are dangerous because firefighters can become surrounded by fire and be cut off from an established egress.

Throughout the length of this fire, fire managers have learned to engage the fire using suppression actions where they would have the highest probability of success, such as direct attack in lighter fuels and point protection around structures. However, patience and taking time are not traditional suppression practices. The Beaver Creek Fire has presented a new firefighting environment and shown that on some landscapes, old strategies

and tactics won't work. Nor do current modeling programs that project fire spread. To be successful, crews have had to adapt to this fire and use it as a learning experience for the future of fire suppression in beetle-killed forests.

One of the successes of this fire has been the opportunity to share observations and best practices for fire suppression in beetle-killed forests. Agency administrators are using the experience to learn to adapt and support this style of fire management, including the challenges of funding a long-term fire event. It's also an opportunity to strengthen and demonstrate resolve for firefighter safety. Through lessons learned and continued communication, similar incidents in the future can be more safely and effectively managed.

