WHAT IS... A Spot Fire? FIRE FACT SHEET

During the process of combustion in a wildland fire, a vegetation fuel is reduced to flammable vapors, soot, and ash. However, during the decomposition of the fuel and before complete consumption, particles of varying size (firebrands) break away from the main fuel source and are lofted upwards by the fire's convection column. By definition, spotting is a fire behavior characteristic by which sparks or embers are carried up by the wind and/or convective column and fall into other downwind fuels to ignite additional fires beyond the zone of direct ignition by the main fire.

Above: The fire approaching West Creek has escalated into extreme conditions due to the area's fuels, temperature, humidity, and wind.

The danger of spotting in wildland fires is that when conditions exist to loft firebrands into the air, the probability exists for multiple subsequent ignitions over a wide area depending on the intensity of the convection and the wind speed and direction. These multiple ignitions can overwhelm any firefighting force.

Fire spotting is one of the major ways that fires spread and homes are ignited and destroyed in wildland/urban interface fires. Firebrands can come down on and ignite combustible roofs, combustible items stored adjacent to homes, and other nearby combustible fuels. The resulting spot fires may go unnoticed and thus unsuppressed when an area has been evacuated of residents, when firefighters are spread too thin, or when spot fires are too numerous.

The maximum spotting distance in a particular fire varies according to several factors, including overall fire intensity, wind speed, fuel type, initial size of the ember when lofted up, and how rapidly it is burning. Many embers burn up completely before landing, but larger embers of slow-burning fuels can keep burning for up to six minutes and travel for thousands of feet. Fire spotting is related to fire danger ratings, which include a word description and a color code:

LOW — Fuels do not ignite readily from small firebrands. There is little danger of spotting..

MODERATE — Fires can start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. Short-distance spotting may occur, but is not persistent.

HIGH — All fine dead fuels ignite readily and fires can start easily from most causes. Short-distance spotting is common. Fires may become serious and their control difficult.

VERY HIGH — Fires start easily from all causes and spread rapidly after ignition and quickly increase in intensity. Spot fires are a constant danger. Fires burning in fine fuels may quickly develop high-intensity characteristics, such as long-distance spotting when they burn into coarse fuels.

EXTREME — All fires are potentially serious. Long-distance spotting is likely.

For more information:

LANL Fire Wildfire Management Planning Website: http://www.LANLWildlandfire.com