

Incident Summary Page for the 100 Fires Project

Incident Name: South Canyon Fire	Incident Date & Time: 07/06/1994 @ 16:15
Incident Location: West of Glenwood Springs, Colorado	Incident Size: 130 acres at time of the blow-up leading to the burnover 2115 acres final size
Types of resources involved: Bureau of Land Management district fire crew and helitack crew US Forest Service Interagency Hotshot Crew and smokejumpers	# of Fatalities/injuries: 14 fatalities / 2 injuries
Reasons this fire was selected for the 100 Fires list:	
<ul style="list-style-type: none"> ➤ Fire made a notable impact within the wildland fire service ➤ 3 or more firefighter fatalities ➤ Hotshot line of duty death 	
Conditions leading up to the event:	
<p>The 1994 fire season was extremely active across the country; by July five geographic areas had major fire activity with many resource orders going unfilled. The Rocky Mountain Geographic Area was one of those areas...they were experiencing historically high levels of fire activity beyond what most field units there were accustomed to. On July 2, dry lightning storms ignited 40 fires on the Grand Junction District of the Bureau of Land Management in western Colorado. One of these fires was named the South Canyon Fire though it was actually located at the base of Storm King Mountain near Glenwood Springs. The District set priorities for initial attack with the highest priority given to fires threatening life, residences, structures, utilities, and with the greatest potential for spread. All firefighting resources on the Grand Junction District were committed to these highest priority fires; this resulted in the South Canyon Fire remaining unstaffed until July 5.</p> <p>On the afternoon of July 3, a Bureau of Land Management engine crew met with the Garfield County Sheriff at a vantage point below the South Canyon Fire. An initial assessment was completed; the fire was judged to be inaccessible and the rate of spread was low. Strategically, there were several higher priority fires in the area and there was a shortage of resources for initial attack throughout the western slope of Colorado. The District Fire Control Officer agreed with initial assessment...the fire would be put in monitor status until the higher priority fires were staffed. Over the next two days, the South Canyon Fire steadily increased in size. On the evening of July 4, the fire was estimated to be 11 acres by an Aerial Observer.</p>	
Brief description of the event:	
<p>Early in the morning on July 5, an initial attack response consisting of an Incident Commander and a crew of seven from the local Bureau of Land Management office was sent to the South Canyon Fire. In order to access the fire, they walked 2 ½ hours from the freeway up a rugged drainage on the east side of the fire. The crew cut a helispot on the ridge above the fire and began direct line construction on the main ridgeline downhill from the helispot. The Incident Commander ordered air tanker drops, another engine crew, a helicopter, and a 20-person handcrew. Due to a shortage of handcrews, it was decided that a load of smokejumpers would be substituted for the 20-person handcrew.</p> <p>Suppression efforts on July 5 consisted of direct handline and air tanker drops. The drops were deemed ineffective due to the steep terrain. Late in the afternoon, the district crew left the fire while eight smokejumpers parachuted onto the main ridgeline. The two groups never made face-to-face contact and the smokejumpers talked with the Incident Commander by radio to get instructions for their assignment.</p> <p>That evening the fire had crossed the line constructed earlier by the district crew and was burning actively, growing to about 50 acres by 22:00. The smokejumpers spent the evening securing the fireline along the main ridge. At this point, the Jumper-in-Charge called Grand Junction District Dispatch and ordered two Type 1 handcrews.</p> <p>By the morning of July 6, the fire had doubled in size and the Jumper-in-Charge ordered a helicopter for logistical support and requested a fixed-wing aircraft with an Aerial Observer. After discussions with Dispatch, it was agreed to use the helicopter for reconnaissance instead of the fixed-wing aircraft. That morning the district crew, now consisting of 11 firefighters, walked back into the fire. The helicopter arrived at 09:30 with four hours of flight time. Eight additional smokejumpers parachuted in at 10:30. At this time, the Incident Commander, the Jumper-in-Charge, and the Helitack Foreman flew the fire and discussed strategy and fire behavior. It was determined that the smokejumpers would begin building fireline down the west flank of the fire and the district crew would secure the existing fireline on the main ridge. At 12:00 the Prineville Interagency Hotshot Crew arrived at the helibase located in the Canyon Creek Estates subdivision about a mile west of the fire. The Jumper-in-Charge requested fire reconnaissance be put on hold and the helicopter to begin the shuttle of the hotshot crew to the top of the fire.</p>	

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Between 11:30 and 13:00, two flare-ups occurred on the west flank which forced the smokejumpers to momentarily retreat up the fireline toward the main ridge. Several of the smokejumpers expressed concerns about building fireline downhill in the dense Gamble oak brush. However, when helicopter bucket drops were initiated below on the west flank the smokejumpers decided to continue building line.

By mid-afternoon, the district crew was working on the main ridge improving line. The smokejumpers were constructing direct handline down the west flank along with the first nine Prineville Hotshot crewmembers that were flown in. The arrival of the second half of the crew was delayed due to competing priorities for bucket drops from the helicopter. But by 15:30, the second half of the Prineville Hotshot Crew was flown in, including the Superintendent and Foreman, and they remained on the main ridge to work spot fires along the ridge. At about this time, several individuals at different locations on the fire observed that the wind speed was beginning to increase. These winds were indicators of an approaching cold front. Although this front had been identified in the regular weather forecast the day prior, the resources on the fire were not aware of its approach.

From 15:30 to 16:00 fire activity began to increase quickly and the helicopter was being requested on both flanks of the fire to help with bucket drops on new flare-ups. During this time the Prineville Hotshot Foreman radioed, *"Things are getting complicated."* At 15:55 several smokejumpers at the bottom of the west flank fireline near a location known as the "Lunch Spot" observed the fire re-burn an area of preheated Gamble oak brush. These fuels had been preheated by a backing ground fire the night before. By 16:00 the smokejumpers observed spot fires in the drainage bottom below the west flank fireline and within minutes a wall of flame was moving up the slope. The Jumper-in-Charge began moving up the fireline ordering firefighters on the west flank to retreat back out toward the main ridge. At 16:11 the Incident Commander called Dispatch to report he was losing the fire, homes were threatened, and order air tanker support.

Between 16:15 and 16:20 the fire moved rapidly up the drainage below the firefighters who were trying to escape back up the fireline on the west flank. As the fire raced up the slope it was influenced by increasingly stronger frontal winds estimated to be 40 mph. The fire reached the main ridge and west flank anchor point in less than 10 minutes, overrunning 12 firefighters on the west flank and two helitack crewmembers on the main ridge. Six firefighters escaped injury by deploying their fire shelters above the Lunch Spot and 34 others escaped by running nearly a mile down the east drainage, a narrow and rugged ravine that was unknown by most of them, to the freeway below the fire.

Fire behavior factors that were present during the event:

Cold front passage with strong, turbulent, and variable winds.

Steep, complex terrain.

Involvement of live fuels not normally considered available to burn due to preheating by backing ground fire that left the fuels mostly normal and leafy looking but extremely flammable.

Operational lessons available for learning from this incident:

Stay informed on fire weather forecasts.

Allowing transportation to dictate tactics and delivering firefighters to locations above a fire increases risk; it is especially important to utilize the Downhill Line Construction Guidelines in such situations.

Avoid uphill escape routes; firefighter travel rates will always be significantly slower than fire rate of spread on a slope.

Notable impact or historical significance for the wildland fire service from this incident:

The most elite firefighting assets in the wildland fire service (smokejumpers, hotshots, and helitack) were assigned to this fire and the result was a tragically bad outcome. The repercussions from this event caused wildland fire agencies to reflect on their operations and several major review efforts were initiated...in addition to the mandatory post-fire investigation, there was the *Interagency Management Review Team Report*, the *Wildland Firefighter Safety Awareness Study*, and the *Fire Behavior Associated with the 1994 South Canyon Fire on Storm King Mountain* research publication. These review efforts provided a foundation for a number of notable organizational change initiatives to move forward such as:

- Focus on human factors and leadership development
- More permanent supervisory positions
- Better integration with predictive services and fire weather specialists
- Development of more effective fire shelters
- Research on safety zone size requirements
- The advent of assignment "turn-down" protocols
- The emergence of an organization to gather lessons learned for future use

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Links to more information on this incident:

<https://www.nwcg.gov/wfldp/toolbox/staff-ride/library/south-canyon-fire>
<https://www.nwcg.gov/committee/6mfs/part4-south-canyon-fire>
https://wildfiretoday.com/?s=south+canyon&monthnum=&year=&states_provinces=&countries=&topics=
<https://wlfalwaysremember.net/1994/07/06/south-canyon-storm-king/>
<https://www.coloradofirecamp.com/south-canyon-fire/index.htm>

Videos:

- <https://www.youtube.com/watch?v=cUII16YIGUo>
- https://www.youtube.com/watch?v=eOP8iHKeA_8

Book:

- *Fire on the Mountain* ~ by John N. Maclean

The Wildland Fire Lessons Learned Center offers an excellent site which provides information on many wildland incidents:

[Wildland Fire Lessons Learned Center's Incident Review Database \(IRDB\) \(wildfire.gov\)](https://www.wildfire.gov/wildfire-lessons-learned-center/incident-review-database)

This summary page was proudly provided by:

Jim Cook and Kurt La Rue

September 2023

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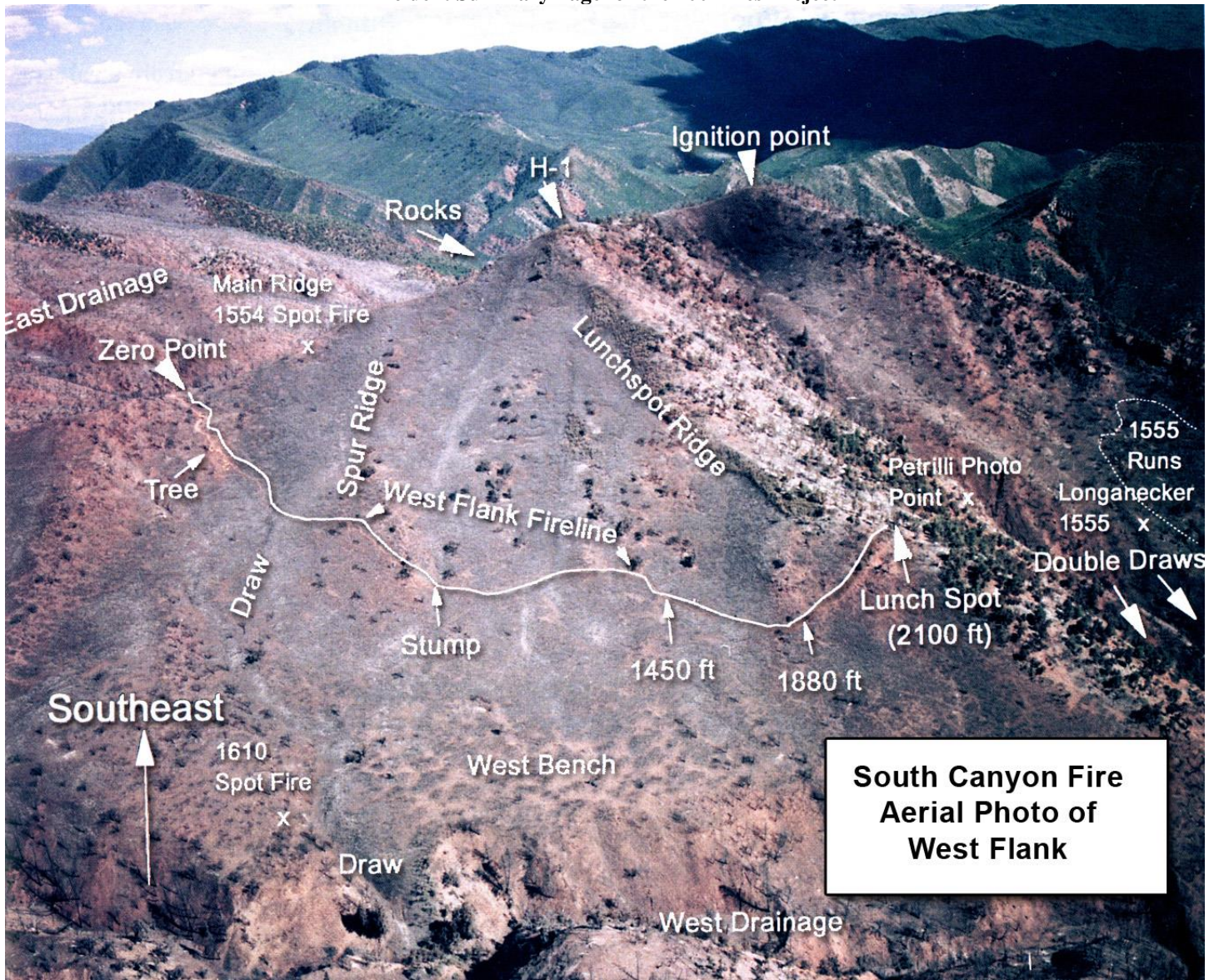
Memorials at the entrance of Canyon Creek Estates (above) and at Two Rivers Park (below) in Glenwood Springs, Colorado honor the 14 firefighters who perished on the South Canyon Fire:

Kathi Beck, Prineville Hotshot
Tamera Bickett, Prineville Hotshot
Scott Blecha, Prineville Hotshot
Don Mackey, Missoula Smokejumper
Terri Hagen, Prineville Hotshot
Bonnie Holtby, Prineville Hotshot
Rob Johnson, Prineville Hotshot

Roger Roth, McCall Smokejumper
Jim Thrash, McCall Smokejumper
Levi Brinkley, Prineville Hotshot
Douglas Dunbar, Prineville Hotshot
Robert Browning Jr., Western Slope Helitack
Richard Tyler, Western Slope Helitack
Jon Kelso, Prineville Hotshot



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