

## Incident Summary Page for the 100 Fires Project

<b>Incident Name:</b> Sundance Fire	<b>Incident Date &amp; Time:</b> 09/01/1967 @ 16:00
<b>Incident Location:</b> Sundance Mountain, Bonner County, Idaho	<b>Incident Size:</b> 55,910 Acres
<b>Type of resources involved:</b> Heavy equipment and overhead personnel	<b># of Fatalities/injuries:</b> 2 fatalities
<b>Reason this fire was selected for the 100 Fires list:</b> ➤ Fire made a notable impact within the wildland fire service.	
<b>Conditions leading up to the event:</b>	
By mid-August of 1967, the Selkirk Mountains of Northern Idaho were in moderate drought. The last wetting rain of the area was in June, and conditions had steadily become hotter and drier as the months passed. Fire danger was classified “Extreme” when a lightning bust moved through the area. The primary fuel type of these mountains was thick timber with areas of logging slash. During the lightning bust, many fires were ignited, including the Sundance Fire, which started on Sundance Mountain near Sundance Lookout (photo 1).	
<b>Brief description of the event:</b>	
On August 23, the Sundance Fire was contained at 35 acres, but one week later northeast winds got a hold of the fire and pushed the flames beyond the containment line. The fire then ran downhill towards Priest Lake and grew to 4000 acres by August 31. Weather forecasts predicted a slight cooling trend for September 1, with increased relative humidity and winds approximately 12-18 mph from the south-southwest. However, by mid-day September 1, the winds were much stronger than expected. Conditions peaked as a dry cold front with extremely strong southwest winds passed over, pushing the fire 16 miles in just 9 hours.	
The U.S. Forest Service assigned command of the fire over to an Overhead Team (now called an incident management team or IMT) at 10:00 hours on September 1. Resources working the fire primarily composed of crews, engines, dozers, and U.S. Army fixed and rotor wing aircraft. Dozers were out ahead of the fire to the northeast opening roads. The focus of the operational shift was to work the western side of the fire; not much activity was expected on the eastern side.	
At 11:00 hours, a Dozer Operator and Sector Boss began work moving up the Pack River drainage toward their safety zone on the eastern part of the Selkirk Divide. The safety zone was located at Fault Lake; nearly 4 miles up drainage and 3000 vertical feet above them. By 13:00, only 2 hours into their work shift, strong southwest winds took hold of the fire as it raced eastward, up Soldier Drainage, to the top of the Selkirk Divide. Throughout the afternoon, the fire made large downhill runs on the eastern side of the divide as winds ranged from 30 to 50 mph.	
Both the Sector Boss and Dozer Operator were overtaken in the Pack River drainage at approximately 16:00 where they hid underneath the dozer to shield them from the flames pushing down the river drainage (photo 2). Sadly, both men were found dead on site. Their names were Luther Rodarte and Lee Collins.	
The Sundance Fire moved on to burn ~10 million board feet of lumber spanning 55,910 acres. The fire was so hot in some drainages that it created its own winds strong enough to snap large trees and spot 10 miles ahead of itself. In the Pack River Valley, temperatures reached 1200 °F which caused the steel of the Pack River Bridge to warp (photo 3).	
<b>Fire behavior factors that were present during the event:</b>	
Strong and dry southwest outflow winds brought on by a cold front passing over the fire were channeled up Soldier Creek drainage, intensifying wind speeds. This lofted fire brands across the Selkirk Divide to the east side. Low fuel moisture, steep terrain with chutes and canyons, and the continuous brush component all combined to sustain a large crown fire in the dense northern Idaho timber stands. Spot fires crossing over the divide merged and produced more crown fire. Because winds were so extreme, the Sundance Fire continued to spot ahead of itself and was able to sustain a running crown fire downhill/down drainage. The presence of firebrands allowed the fire to jump any natural barrier, road, or logged/thinned areas. Ultimately, reprieve was only found after winds ceased and the relative humidity increased.	
<b>Operational lessons available for learning from this incident:</b>	
Some of the 18 Watch Out Situations were present during the burn over event:	
<b>Unburned fuel between you and fire.</b> ➤ Being out ahead of the fire by miles, there was a great amount of fuel in-between them and the fire.	

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### Cannot see main fire; not in contact with someone who can.

- The two men were working miles away from the fire to the northeast and could not see the main fire. In addition, the Sector Boss did not have a 2-way radio nor a vehicle.

### Wind increases and/or changes direction.

- With the new cold front entering the area, winds were projected to be 12-18 mph.
- This is a substantial increase from the previous weather trends, though, the actual winds during the blow-up event were 30-50 mph.

### Getting frequent spot fires across line.

- As the fire was blowing up on the west side of the Selkirk Divide, spot fires were traveling over to the east side of the divide. Reports indicate that the fire spotted 10-12 miles ahead of itself in some areas.

### Terrain and fuels make escape to safety zones difficult.

- The safety zone for the Dozer Operator and Sector Boss, was almost four miles away and 3000 ft of elevation gain. Their plan was to work up-canyon towards the lake. However, the fire burned over their position while they were still a quarter mile away from their safety zone.

Combining the fact that the two men were such a great distance from the main fire and the primary concern for the operational shift was to work the western flank, there may have been a sense of complacency on the eastern side. Additionally, the weather forecast didn't project conditions nearly as dangerous as what came to fruition. Also, the men were under supplied and under equipped to safely complete their mission with the conditions that were present.

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

The Sundance Fire was one of the first, if not the first, wildland fire to have a scientific research paper published regarding meteorological influences and fire behavior phenomena. This fire had a large amount of organized research potential already set in place, making a comprehensive report possible only one year after the incident. The research to come out of this fire made a notable first step in analyzing and quantifying certain variables of the environment and their subsequent impacts on fire behavior. This research also helped demonstrate the need for remote sensing on large wildfires.

### Links to more information on this incident:

Anderson, H. E. (1968). Sundance Fire : An Analysis of Fire Phenomena /.

- [https://www.fs.usda.gov/rm/pubs\\_int/int\\_rp056.pdf](https://www.fs.usda.gov/rm/pubs_int/int_rp056.pdf)

Gunter, B. (n.d.). History - Sundance Fire in the Selkirk Mountains - Sandpoint and North Idaho History Guide.

- <https://www.sandpoint.com/community/history-sundance-fire.php>

Landers, R. (2017, August 19). Sundance Fire 50th anniversary commemorated.

- <https://www.spokesman.com/stories/2017/aug/20/sundance-fire-50th-anniversary-commemorated/>

NWCG Incident Response Pocket Guide (IRPG), PMS 461. – 18 Watchout situations

- <https://www.nwcg.gov/sites/default/files/publications/pms461.pdf>

Petersen, J. (2023, November 11). The Sundance Fire Remembered. Evergreen Magazine.

- <https://evergreenmagazine.com/sundance-fire-remembered/>

Sundance Fire (Idaho) – September 1, 1967. NWCG. (August 2023).

- <https://www.nwcg.gov/committee/6mfs/sundance-fire>

The Lessons & Legacy of the Sundance Fire. (September 5, 2017). Bonner County Daily Bee.

- <https://bonnercountydailybee.com/news/2017/sep/05/the-lessons-legacy-of-the-sundance-fire-7/>

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

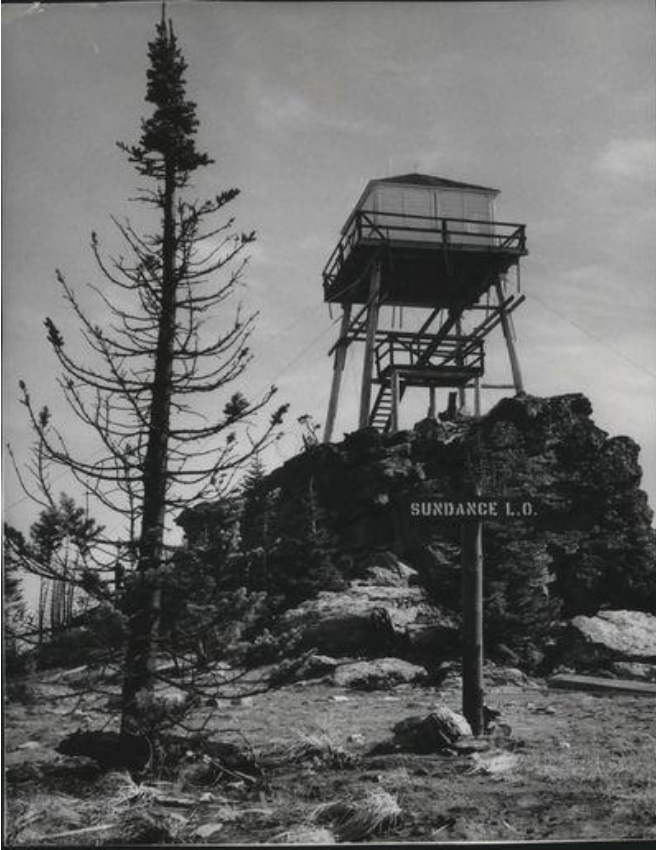
[Wildland Fire Lessons Learned Center's Incident Review Database \(IRDB\) \(wildfire.gov\)](https://www.wildfire.gov/wildfire-lessons-learned-center/incident-review-database)

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**Sundance Lookout atop Sundance Mountain (6,298 ft) near the initial strike location. The trees are nearly completely consumed with only the tops still housing needles. (Landers, 2017)**



**The dozer after the burn over. (Peterson, 2023)**

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**The fire damaged Pack River Bridge. Anderson infers that the fire reached 1200°F for the steel to warp under its own weight. (Caroline Lobsinger, Bonner County Daily Bee, 2017)**