

Granddad Fire
 FBAN Investigation Notes
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 FBAN – CIIMT4

BACKGROUND:

I was asked on the evening of 8/28/06 to meet with personnel investigating several potential ignitions on the Granddad fire, which was part of the South End Complex (OR-BUD-002500). After discussing with the Incident Commander, Rocky Opliger, I met with the investigators on the morning of 8/29/06 at Frenchglen. After this meeting, I spent most of the day with Joe Glasscock, who is in charge of the range allotments for this area. My task, as I understood it, was to determine the answers to three questions:

1. Is it possible for a spot fire to occur from the firing operations that occurred during the evening of August 22, 2006.
2. What is the spotting distance of the main fire during the afternoon of August 22, 2006.
3. What is the spotting distance and ignition probability of the main fire between 10:00 and 12:00 on August 23, 2006.

MODELS AND ASSUMPTIONS:

- Moon Hill RAWs, Latitude 42.8592, Longitude -118.6789, elevation 6,100 feet was used for projections as on-site weather did not exist.
- Weather observations are within 1,000 feet elevation of start locations.
- South aspect is assumed at Start locations and weather locations
- Topography is flat
- Fuels were 100% shaded when the firing occurred (it was after dark).
- Spotting tree is a hemlock, which approximates the foliage of a juniper.
- REMSOFT'S BEHAVE was used to determine the spotting distance and probability of ignition of the spot fire.
- The fire perimeter as provided to the management team by the Burns Interagency Fire Zone was used to determine the main fire location. The perimeter used was the 0645 perimeter for August 23, 2006.
- Geographic measurements were performed in ArcView.

Question 1: Is it possible for a spot fire to occur from the firing operations that occurred during the evening of August 22, 2006. The answer is yes.

Moon Hill RAWs data was entered into BEHAVE for the period of 12:00 hours on August 22, 2006 to 12:00 hours on August 23, 2006. The probability of ignition ranges during the period from 80% to 100%. The overnight humidity recovery was poor the night of the 22nd and this contributed to the high ignition probability. The model does not estimate the probability of a burning ember landing on a receptive fuel. It estimates the chance the fuel will ignite once it does land. If a 1 foot flame length is assumed with a 1 mph wind at 20 feet, BEHAVE estimates a maximum spotting distance between 50 and 60 feet for a wind driven surface fire. A torching juniper, assuming its torching

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characteristics are similar to hemlock, produces similar results. The model does not address the likelihood that a burning ember will be produced; rather it models how far such an ember could travel.

Question 2: What is the maximum spotting distance of the main fire during the afternoon of August 22, 2006? If it's assumed the spotting is from a wind driven surface fire and the average 20 foot wind speed is used to determine flame length, the maximum flame length during the afternoon is about 12 feet. If wind gust is used for the 20 foot wind speed in the Spot Module, then the maximum spotting distance is approximately 3,000 feet.

Using the 06:45 perimeter and the waypoints of the Starts, the fire perimeter is over a mile away from on the morning of August 23, 2006.

Question 3: What is the spotting distance and ignition probability of the main fire between 10:00 and 12:00 on August 23, 2006? Calculating the spotting distance using the same methodology as in Question 2, the flame length is 9 feet. The maximum wind gust is 25 mph out of the west. This yields a maximum spotting distance of just under ½ mile. The highest probability of ignition is 90% for the period.

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