

Fuels and Fire Behavior Digital Dictionary

The Fire Behavior Assessment Team

King Fire
Plot #3

9/18/2014
Region5/Eldorado NF



Transect 1, Pre, 0-50 ft



Transect 1, Post, 0-50 ft

Transect 1, Pre, 50-0 ft,
Unavailable

Transect 1, Post, 50-0 ft,
Unavailable



Transect 2, Pre, 0-50 ft



Transect 2, Post, 0-50 ft



Transect 2, Pre, 50-0 ft



Transect 2, Post, 50-0 ft



Transect 3, Pre, 0-50 ft



Transect 3, Post, 0-50 ft



Transect 3, Pre, 50-0 ft



Transect 3, Post, 50-0 ft

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Fuels, Topography, Weather

Site Info	
Veg Type	Mixed conifer
Slope (%)	20
Aspect (deg)	270
Elev (ft)	4920

Climatic Variables	
Fire Arrival (Date, Time)	9/18/2014, 11:32
Burn End (Date, Time)	13:00+
20ft Wind (mph), 10min avg./gusts	7/ n/a
Onsite wind(mph), eyelevel (10min avg.)	n/a
Wind direction (azimuth)	240
RH (%)	74
Temp (F)	63
ERC/BI	49/22
Drought Index	n/a
Live FM% (Herb/Woody)	30/60
Dead FM% (1/10/100/1000hr)	19/24/10/9

Fuel Model (min/max)
161/165

Surface Fuels - Pre	Tons/acre
1-hour	0.5
10-hour	0.9
100-hour	2.8
1000-hour	7.5
Litter	8.9
Duff	22.5
Total Fuels	43.1

Understory Veg.	Tons/ac
Live/Dead Shrub	0.01/<0.005
Live/Dead Herbaceous	<0.005/<0.005

Canopy & Stand	
Canopy Bulk Density (kg/m ³)	0.04
Canopy Base Height (ft)	30
Basal Area (ft ² /ac)	322
Overstory Trees/ac	68

Climatic Variable Sources

Weather and fuel moistures from Bald Mountain RAWs utilizing NFDRS2016. ERC and BI are scores, not percentiles.

Site History: Commercial thin in 2012. Understory patchiness remained due to heavy equipt tracks... this influenced fire spread.

Fire Behavior

Fire Behavior	
Primary Fire Type	Surface, creeping
Secondary Fire Type	n/a
ROS - sensor source (ch/hr) (min/max/avg.)	0.13/0.39/0.27
ROS - video interp. (ch/hr) (min/max/avg.)	0.75/ 1.25/ 1
Flame Length (ft) (min/max.avg)	0.5/ 2 / 1
Primary Fire Spread Direction in plot (azimuth)	135

Fire Video	Description

Fire management actions affecting plot:



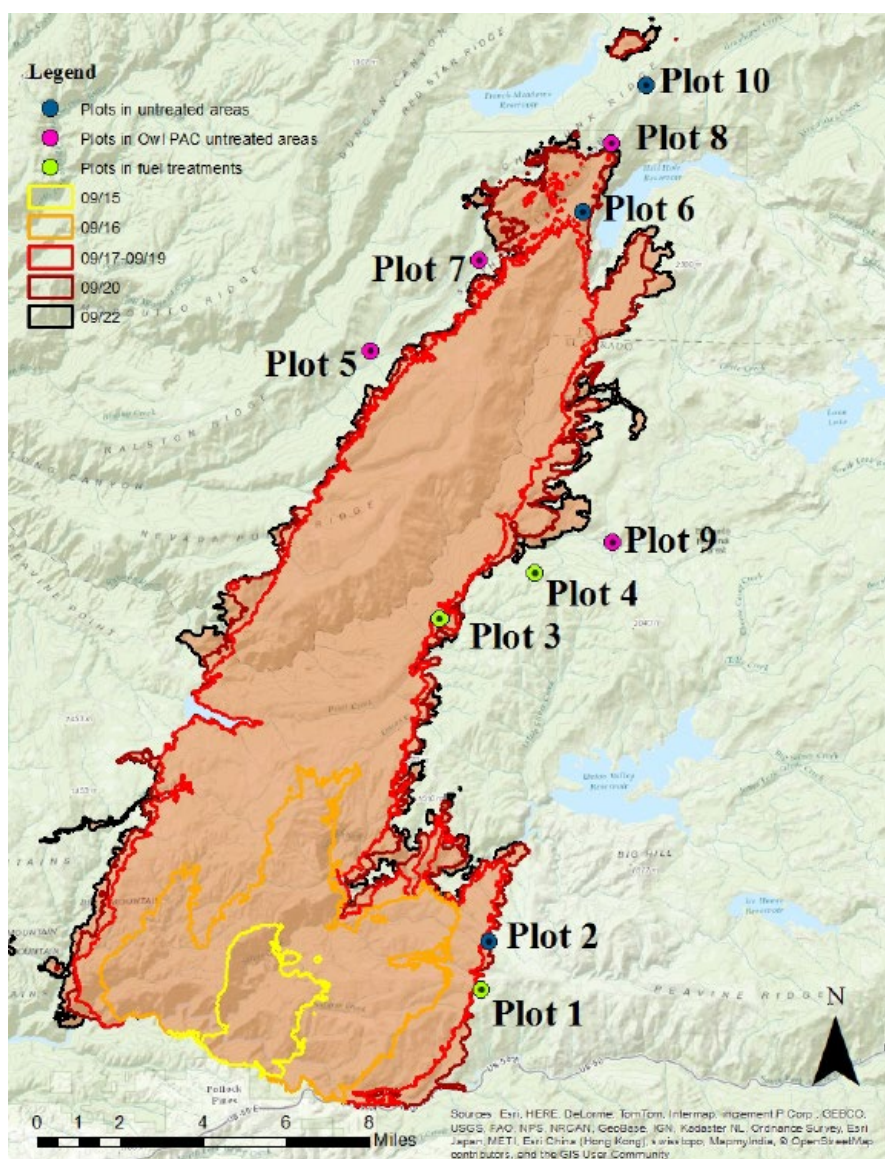
XXXXX

Fire Effects

Fire Severity	
Substrate Score (1-5)	3.8
Understory Vegetation Score (1-5)	4.3
Avg. % tree canopy scorch	2
Avg. % tree canopy torch	0
Avg. tree bole char (ft)	11

Severity category definitions: 1= unburned, 2=low, 3=moderate, 4=high, 5=very high

Fuel Consumption	%
1-hour	67
10-hour	25
100-hour	100
1000-hour	100
Litter	76
Duff	73



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About the Fire Behavior Assessment Team (FBAT)

Abstract

Despite the scope of the US wildfire problem, capabilities for monitoring active wildfires to answer pressing questions about fire behavior and personnel safety are severely limited. The **Fire Behavior Assessment Team (FBAT)** is the only team currently collecting [applied science data on active wildfires](#). FBAT functions in collaboration with land managers and interested research groups. In coordination with incident management, sites are placed opportunistically ahead of the fire accounting for current and expected fire behavior, safe access, and fire management tactics.

FBAT can collect standard weather, fire behavior and fire severity observations as well as set up dataloggers which store wind speed, direction, temperature and RH. FBAT can also take plot data which includes:

- Heat resistant fire behavior equipment left on-site (video camera, 5-foot anemometer, sensor array for rate of spread/temperature profile through time, heat flux sensor).
- Fuels data collected on canopy, surface and ground fuels before and after the fire, and fire severity assessment post-fire. Fuel moisture data is often collected prior to the fire.

More information about methods and data can be found on the FBAT website:

<https://www.frames.gov/fbat/home>

The report for this fire which includes field methods and other background can be found at:

https://www.fs.fed.us/adaptivemanagement/reports/fbat/Antelope_detail.pdf