

# Fuels and Fire Behavior Digital Dictionary

The Fire Behavior Assessment Team

Rim Fire  
Plot 9

9/1/2013

Region5/Stanislaus NF and Yosemite NP



Transect 1, Pre, 0-50 ft



Transect 1, Post, 0-50 ft



Transect 1, Pre, 50-0 ft



Transect 1, Post, 50-0 ft



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	Older pine plantation
Slope (%)	15
Aspect (deg)	130
Elev (ft)	~5,200

Climatic Variables	
Fire Arrival (Date, Time)	9/1/13, 14:38
Burn End (Date, Time)	9/1/13, 16:00
20ft Wind (mph), 10min avg/gusts	8/14
Onsite wind (mph), eyelevel (10min avg)	n/a
Wind direction	unk.
RH%	34
Temp (F)	79
ERC/BI	65/45
Drought Index	n/a
Live FM% (Herb/Woody) from RAWS	42/95
Live FM% (taken onsite)	n/a
Dead FM% (1/10/100/1000hr)	8/8/9/10

Fuel Model (low/high)
183/161

Surface Fuels - Pre	Tons/ac
1-hour	0.1
10-hour	0.7
100-hour	1
1000-hour	3.6
Litter	6
Duff	35.0
Total Fuels	52.4

Understory Veg.	Tons/ac
Live/Dead Shrub	0.163 / 0.065
Live/Dead Herbaceous	0.004 / 0.002

Canopy & Stand	
Canopy Bulk Density (kg/m <sup>3</sup> )	0.059
Canopy Base Height (ft)	12
Basal Area (ft <sup>2</sup> /ac)	119
Overstory Trees/ac	111

### Climatic Variable Details

Weather and fuel moisture taken from Mt. Elizabeth RAWS using NFDRS2016 outputs. ERC and BI are scores, not percentiles.

Site History: Pine plantation. Commercial tree thinning treatment 1999-2004.

## Fire Behavior

Fire Behavior	
Primary Fire Type	Surface
Secondary Fire Type	Limited torching
ROS - sensor source (ch/hr) (min/max/avg)	n/a
ROS - video interp. (ch/hr) (min/max/avg)	n/a
Flame Length (ft) (min/max/avg)	n/a
Direction Fire Spread is going (azimuth)	n/a

Fire Video	Description

Fire management actions affecting plot:  
Burnout operation

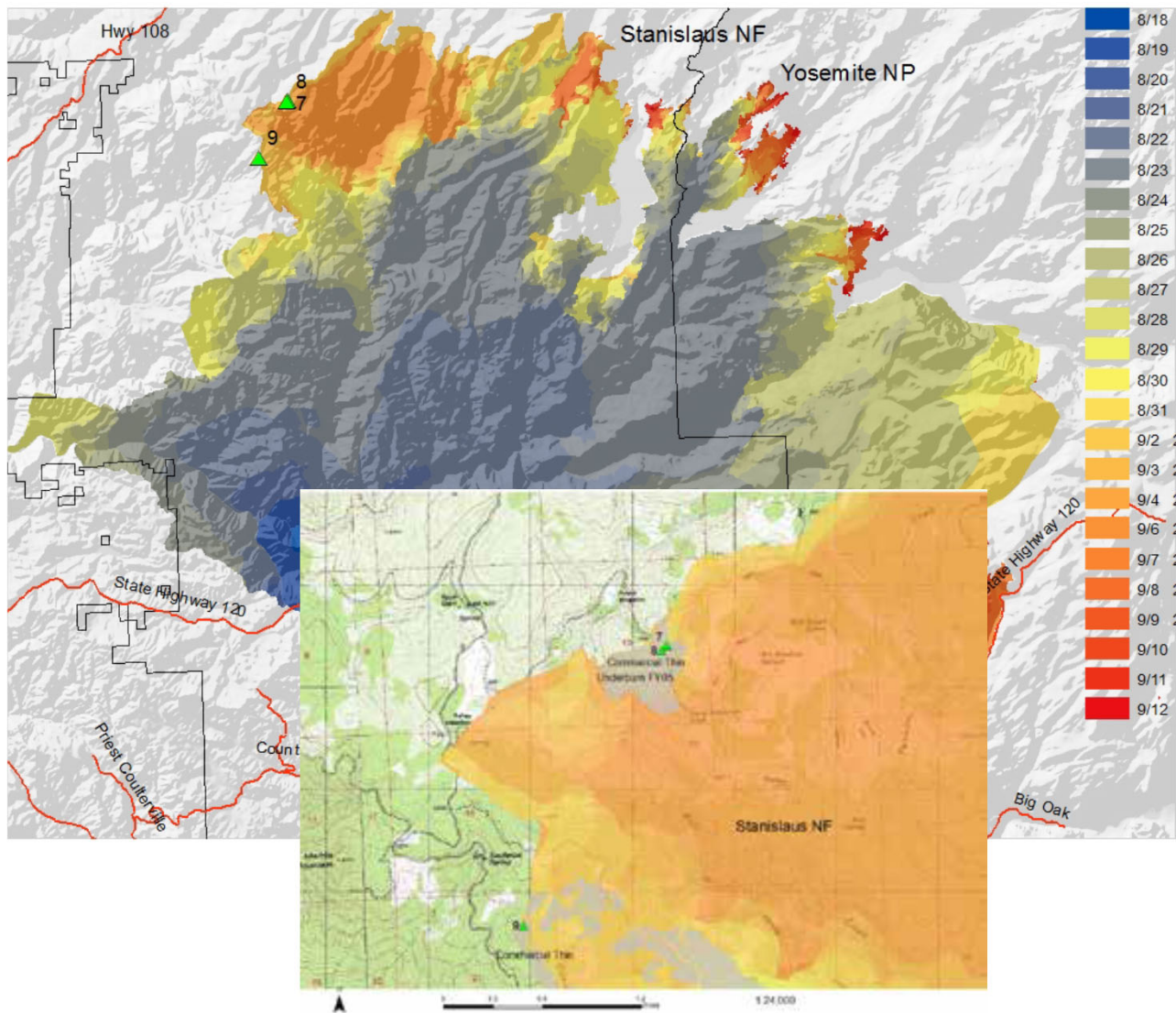
No Video. Camera malfunctioned due to  
high heat (videotape warped)

## Fire Effects

Fire Severity	
Substrate Score (1-5)	1.1
Understory Vegetation Score (1-5)	2.7
Avg % tree canopy scorch	57.5
Avg % tree canopy torch	0
Avg tree bole char (ft)	n/a

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

Fuel Consumption	%
1-hour	77
10-hour	63
100-hour	100
1000-hour	100
Litter	97
Duff	98



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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/2013\\_FBATdraftRimFire\\_061015\\_Final.pdf](https://www.fs.fed.us/adaptivemanagement/reports/fbat/2013_FBATdraftRimFire_061015_Final.pdf)