Fuels and Fire Behavior Digital Dictionary

The Fire Behavior Assessment Team

Aspen Fire
Plot 6

7/30/2013
Region5/Sierra NF

Transect 1, Pre, 0-50 ft

Transect 1, Post, 0-50 ft

Transect 1, Pre, 50-0 ft

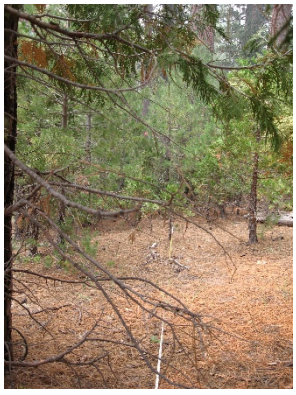
Transect 1, Post, 50-0 ft

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

Fuels, Topography, Weather

Site Info	
Veg Type	Mixed conifer
Slope (%)	18
Aspect (deg)	180
Elev (ft)	5,500

Climatic Variables	
Fire Arrival (Date, Time)	7/30/13, 01:36
Burn End (Date, Time)	02:57+
20ft Wind (mph), 10min avg./gusts	4/7
Onsite wind(mph), eyelevel (10min avg.)	n/a
Wind direction (azimuth)	231
RH (%)	62
Temp (F)	50
ERC/BI	40/28
Drought Index	n/a
Live FM% (Herb/Woody)	205/211
Dead FM% (1/10/100/1000hr)	15/12/13/13

Plant Species	Fuel Type	Average Fuel Moisture (%)
Manzanita	woody	45
	leaves	112
White fir	needles	125
Ponderosa pine	needles	124
	1000-hr	13
Sugar pine	1000-hr	10

Fuel Model (low/high)
183/188

Surface Fuels - Pre	Tons/ac
1-hour	0.05
10-hour	0.9
100-hour	0
1000-hour	2
Litter	10.6
Duff	39.5
Total Fuels	52.9

Understory Veg.	Tons/ac
Live/Dead Shrub	0.342/0.039
Live/Dead Herbaceous	0.0006/0.0003

Canopy & Stand	
Canopy Bulk Density (kg/m^3)	0.17
Canopy Base Height (ft)	4
Basal Area (ft^2/ac)	246
Overstory Trees/ac	734

Climatic Variable Details

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

Site History:

Fire Behavior

Fire Behavior	
Primary Fire Type	Surface, low intensity
Secondary Fire Type	Minor torching
ROS - sensor source (ch/hr) (min/max/avg.)	0.53
ROS - video interp. (ch/hr) (min/max/avg.)	1
Flame Length (ft) (min/max)	1 / 4
Direction fire spread is going. (azimuth)	~290

Fire Video	Description
	No video – Camera malfunction

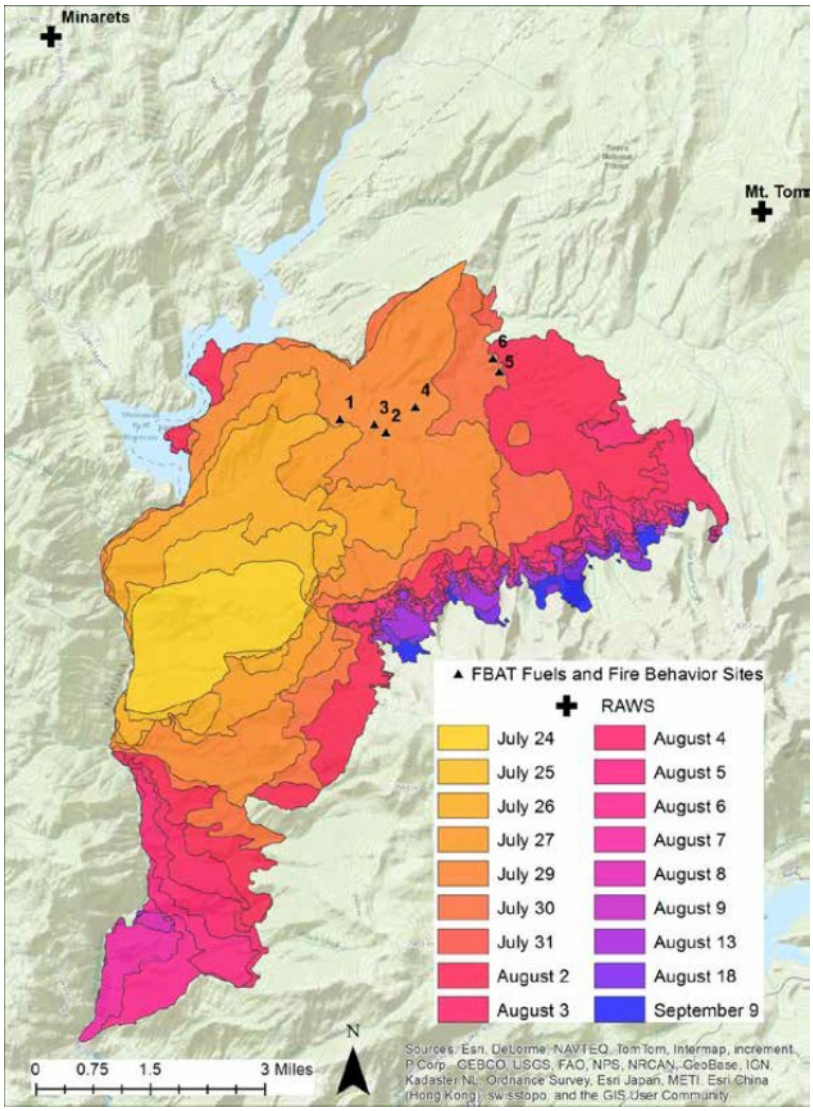
Fire management actions affecting plot:

Fire Effects

Fire Severity	
Substrate Score (1-5)	2.9
Understory Veg Score (1-5)	2.1
Avg % tree canopy scorch	5
Avg % tree canopy torch	0
Avg tree bole char (ft)	No data

Fuel Consumption	%
1-hour	60
10-hour	80
100-hour	0
1000-hour	100
Litter	100
Duff	100

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



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

Aspen Fire, Plot 6, 2013