Fuels and Fire Behavior Digital Dictionary

The Fire Behavior Assessment Team

Aspen Fire
Plot 3

7/28/2013
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	Manzanita dominated montane shrubland
Slope (%)	37
Aspect (deg)	360
Elev (ft)	5180

Climatic Variables	
Fire Arrival (Date, Time)	7/28/13
Burn End (Date, Time)	n/a
20ft Wind (mph), 10min avg./gusts	16/25
Onsite wind(mph), eyelevel (10min avg.)	n/a
Wind direction (azimuth)	254
RH (%)	47
Temp (F)	64
ERC/BI	44/41
Drought Index	n/a
Live FM% (Herb/Woody)	201/208
Dead FM% (1/10/100/1000hr)	10/12/13/12

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)
142/145

Surface Fuels - Pre	Tons/ac
1-hour	0.2
10-hour	0.2
100-hour	2.2
1000-hour	4.9
Litter	3.1
Duff	10.6
Total Fuels	21.2

Understory Veg.	Tons/ac
Live/Dead Shrub	7.199/0.801
Live/Dead Herbaceous	0.0002/0.0001

Canopy & Stand	
Canopy Bulk Density (kg/m^3)	0.01
Canopy Base Height (ft)	18
Basal Area (ft^2/ac)	9
Overstory Trees/ac	5

Climatic Variable Details

Weather and fuel moisture taken form Mt. Tom RAWS at 1300 hrs. using NFDRS2016. ERC and BI are scores, not percentiles.

Site History:

Fire Behavior

Fire Behavior	
Primary Fire Type)	Surface, low severity, patchy
Secondary Fire Type	n/a
ROS - sensor source (ch/hr) (min/max/avg.)	No quality data
ROS - video interp. (ch/hr) (min/max/avg.)	No quality data
Flame Length (ft) (min/max)	No quality data
Direction fire spread is going. (azimuth)	No quality data

Fire management actions affecting plot:

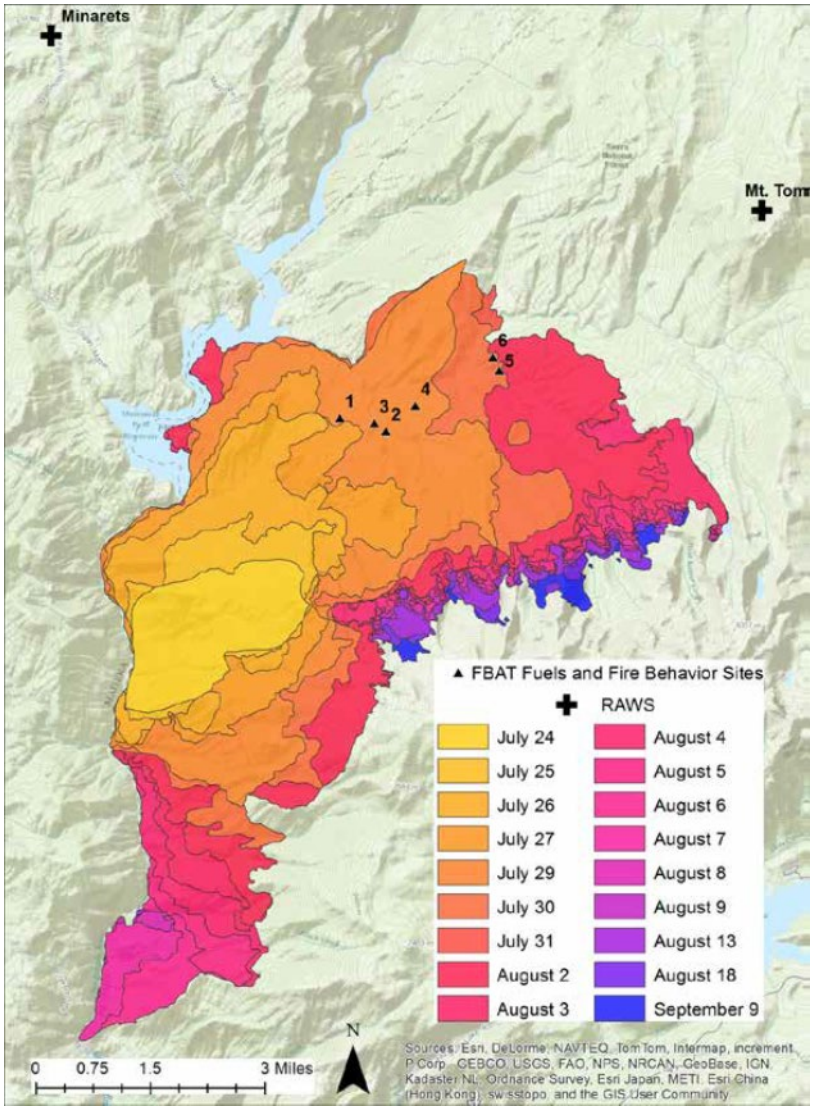
No quality video footage, very patchy burn

Fire Effects

Fire Severity	
Substrate Score (1-5)	1.3
Understory Veg Score (1-5)	1.2
Avg. % tree canopy scorch	<1
Avg. % tree canopy torch	0
Avg. tree bole char (ft)	No data

Fuel Consumption	%
1-hour	11
10-hour	-198
100-hour	79
1000-hour	36
Litter	38
Duff	33

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



Aspen Fire, Plot 3, 2013

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