Fuels and Fire Behavior Digital Dictionary

The Fire Behavior Assessment Team

Cedar Fire	8/24/2016
Plot 4	Region5/Sequoia NF

Transect 3, Pre, 50-0 ft

Transect 3, Post, 50-0 ft

Fuels, Topography, Weather

Site Info	
Veg Type	Mixed con
Slope (%)	Not recorded
Aspect (deg)	Not recorded
Elev (ft)	Not recorded

Climatic Variables	
Fire Arrival (Date, Time)	8/24/16, 22:36
Burn End (Date, Time)	8/24/16, 23:17
20ft Wind (mph), 10min avg./gusts	2/5
Onsite wind(mph), eyelevel (10min avg.)	n/a
Wind direction (azimuth)	112
RH (%)	43
Temp (F)	64
ERC/BI	64/47
Drought Index	
Live FM% (Herb/Woody)	39/97
Live FM% (taken onsite)	113-131
Dead FM% (1/10/100/1000hr)	11/7/10/9

Fuel Model (low/high)
183/188

Surface Fuels - Pre	Tons/ac
1-hour	0.9
10-hour	2.9
100-hour	2.7
1000-hour	26.1
Litter	12.9
Duff	18.8
Total Fuels	64.3

Understory Veg.	Tons/ac
Live/Dead Shrub	0.006 / 0
Live/Dead Herbaceous	0 / 0.028

Canopy & Stand	
Canopy Bulk Density (kg/m^3)	No data
Canopy Base Height (ft)	No data
Basal Area (ft^2/ac)	No data
Overstory Trees/ac	76

Climatic Variable Details
Weather and fuel moisture data taken from WHL/Hotspings RAWS at 2200 using NFDRS2016. ERC and BI are scores not percentiles.

Site History: Area thinned w/in last 5 years. Thin from below.

Fire Behavior

Fire Behavior	
Primary Fire Type	No data
Secondary Fire Type	No data
ROS - sensor source (ch/hr) (min/max/avg.)	No data
ROS - video interp. (ch/hr) (min/max/avg.)	n/a
Flame Length (ft) (min/max)	n/a
Primary Fire Spread Direction in plot (azimuth)	~360?

Fire Video	Description
	Video camera malfunction

Fire management actions affecting plot:
burnout operation

Fire Effects

Fire Severity	
Substrate Score (1-5)	No data
Understory Vegetation Score (1-5)	No data
Avg. % tree canopy scorch	No data
Avg. % tree canopy torch	No data
Avg. tree bole char (ft)	No data

Fuel Consumption	%
1-hour	91
10-hour	86
100-hour	51
1000-hour	100
Litter	67
Duff	42

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

Cedar Fire, Plot 4, 2016