Fuels and Fire Behavior Digital Dictionary

The Fire Behavior Assessment Team

Lion Fire	7/16/2011
Plot 1	Region5/Sequoia NF

Plot 1, 0-50, Pre

Plot 1, 0-50, Post

Fuels, Topography, Weather

Site Info	
Veg Type	Ponderosa pine; understory manzanita, ceanothus,& chinquapin
Slope (%)	16
Aspect (deg)	270
Elev (ft)	~6000

Climatic Variables	
Fire Arrival (Date, Time)	7/16/11, 14:00
Burn End (Date, Time)	7/16/11, 15:40
20ft Wind, 10min avg/gusts (mph)	8/17
Onsite wind, eyelevel (10-sec mean) (mph)	0.25
Wind direction (azimuth)	135
RH (%)	48
Temp (F)	63
ERC/BI	28/26
Drought Index	n/a
Live FM% (Herb/Woody)	193/201
100 FM% (taken onsite)	12
Dead FM% (1/10/100/1000hr)	12/15/16/16

Fuel Model (low/high)
161/188

Surface Fuels - Pre	Tons/ac
1-hour	0.03
10-hour	0.7
100-hour	1.4
1000-hour	0
Litter	6.1
Duff	36.1
Total Fuels	61.1

Understory Veg.	Tons/ac
Live/Dead Shrub	0.03 / 0
Live/Dead Herbaceous	<0.01

Canopy & Stand	
Canopy Bulk Density (kg/m^3)	0.09
Canopy Base Height (ft)	1
Basal Area (ft^2/ac)	278
Overstory Trees/ac	172

Climatic Variable Details

Weather and fuel moisture taken from the Peppermint RAWS using NFDRS2016. Onsite wind was collected from an anemometer. ERC and BI are scores, not percentiles.

Site History: This study plot was in the Golden Trout Wilderness, with no known fire history at the plot sites.

Fire Behavior

Fire Behavior	
Primary Fire Type	Surface
Secondary Fire Type	n/a
ROS - sensor source (ch/hr) (min/max/avg)	0.6/8.4/2.7
ROS - video interp. (ch/hr) (min/max/avg)	1 to 2
Flame Length (ft) (min/max)	1+
Direction Fire Spread is going (azimuth)	45

Fire Video	Description
n/a	n/a
n/a	n/a
n/a	n/a

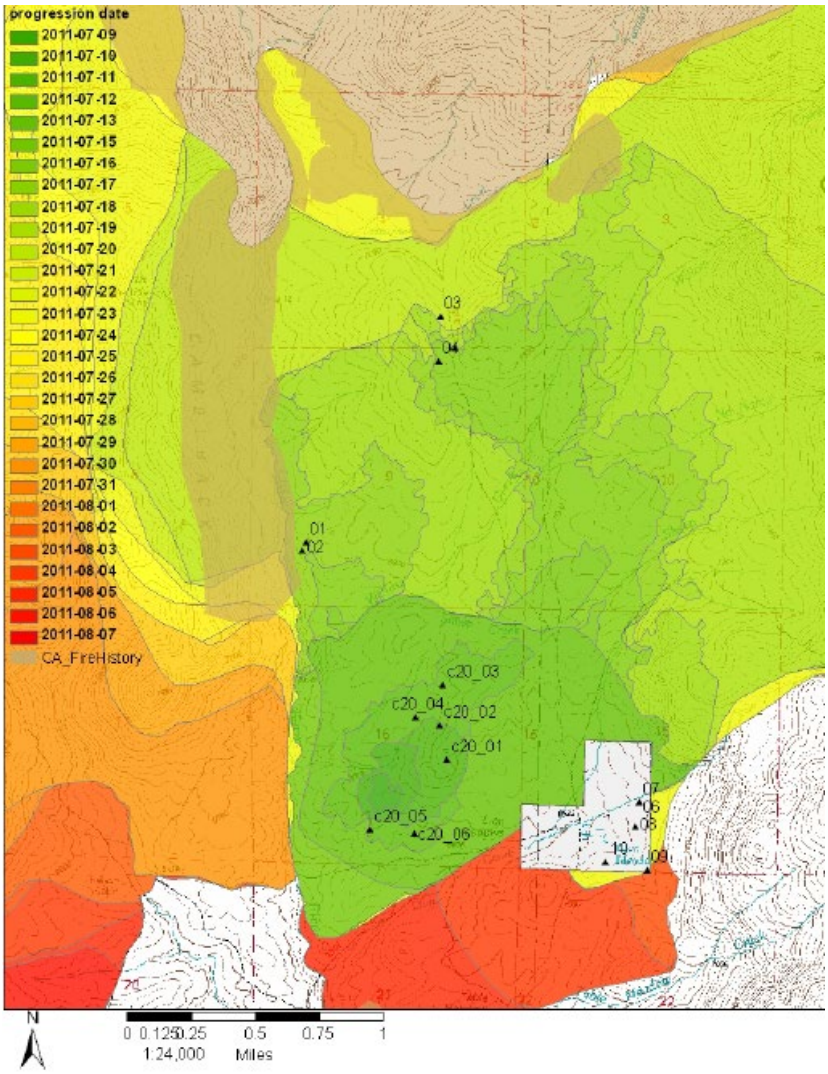
Fire management actions affecting plot: n/a

Fire Effects

Fire Severity	
Substrate Score (1-5)	4.4
Understory Veg Score (1-5)	4.9
Avg % tree canopy scorch	95
Avg % tree canopy torch	1
Avg tree bole char (ft)	Not Reported

Fuel Consumption	%
1-hour	51
10-hour	75
100-hour	66
1000-hour	n/a
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/Lion_Fire_Fuels_report_092011_draft2_standard.pdf