Fuels and Fire Behavior Digital Dictionary

The Fire Behavior Assessment Team

Antelope Fire	7/ 7-12 /2007
Plot 2	Region5/Plumas NF

Transect 1, Pre, 0-50 ft

Transect 1, Post, 0-50 ft

Fuels, Topography, Weather

Site Info	
Veg Type	Yellow pine, Doug-fir, white fir, bitterbrush and manzanita understory
Slope (%)	5
Aspect (deg)	218
Elev (ft)	5147

Climatic Variables	
Fire Arrival (Date, Time)	7/7-12/07
Burn End (Date, Time)	n/a
20ft Wind, 10min avg./ gusts (mph)	3/6
Onsite wind, eyelevel (10min avg.) (mph)	n/a
Wind direction (azimuth)	160
RH (%)	44
Temp (F)	54
ERC/BI	54/27
Drought Index	n/a
Live FM% (Herb/Woody)	30/60
Dead FM% (1/10/100/1000hr)	10/6/9/11

Fuel Model (low/high)
161/188

Surface Fuels - Pre	Tons/ac
1-hour	0.1
10-hour	1.3
100-hour	1.5
1000-hour	18
Litter	11
Duff	29.7
Total Fuels	61.6

Understory Veg.	Tons/ac
Live&Dead Shrub	8.14
Live&Dead Herbaceous	0

Canopy & Stand	
Canopy Bulk Density (kg/m^3)	0.07
Canopy Base Height (ft)	13
Basal Area (ft^2/ac)	28
Overstory Trees/ac	104

Climatic Variable Details

Weather and fuel moistures taken from Coyote RAWS on 7/7/07 at 0000 hours using NFDRS 2016. ERC and BI are scores, not percentiles.

Site History: Treated with selected harvest/thin

Fire Behavior

Fire Behavior	
Primary Fire Type	Surface fire, low intensity
Secondary Fire Type	n/a
ROS - sensor source (ch/hr)(min/max/avg.)	0.09 / 18 / 4.6
ROS - video interp. (ch/hr) (min/max/avg.)	1, 1, 1
Flame Length (ft) (min/max/avg.)	3, 6, 4
Direction Fire Spread is going (azimuth)	350

Fire management actions affecting plot: n/a

Plot 2. Burning against the wind.

Fire Effects

Fire Severity	
Substrate Score (1-5)	4
Understory Vegetation Score (1-5)	3
Avg. % tree canopy scorch	10
Avg. % tree canopy torch	0
Avg. tree bole char (ft)	No data

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

Fuel Consumption	%
1-hour	100
10-hour	100
100-hour	100
1000-hour	100
Litter	100
Duff	100

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

Antelope Fire, Plot 2, 2007