

WILDLAND FIRE

USFS

Lake Tahoe Basin Management Unit





FIRE TYPES

- **SURFACE FIRE**
 - Only understory vegetation
- **PASSIVE CROWN FIRE**
 - Occasional torching of isolated trees
- **ACTIVE CROWN FIRE**
 - Continuous crown fire



SURFACE FIRE



PASSIVE CROWN FIRE



ACTIVE CROWN FIRE

FIRE BEHAVIOR

Inputs

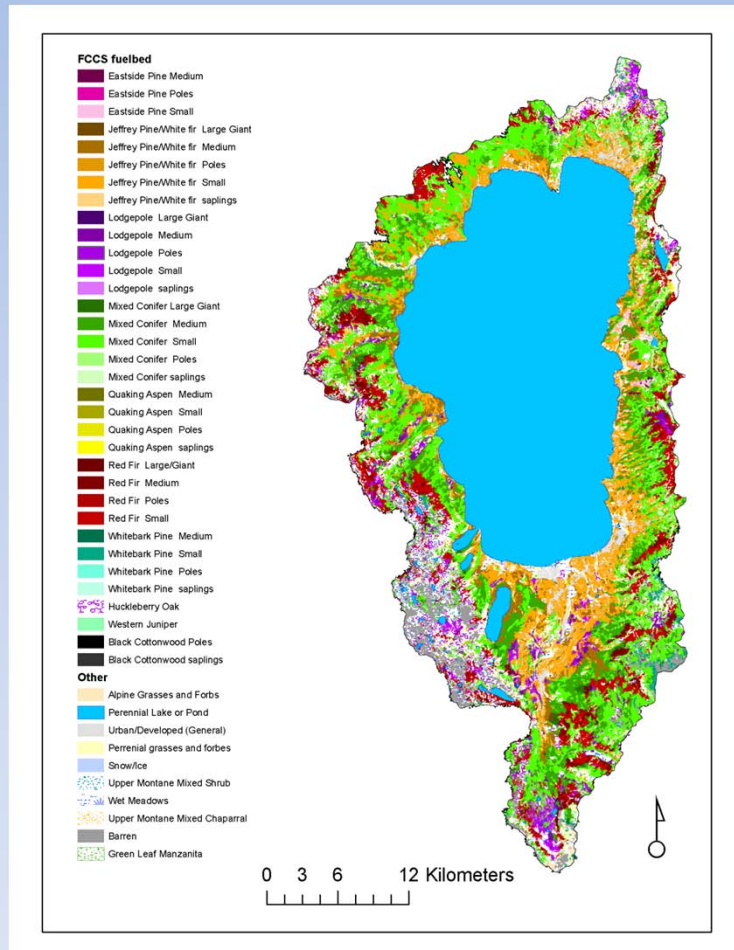
- Fuel Model
- Slope
- Weather
 - Wind Speed
 - Fuel Moisture

Outputs

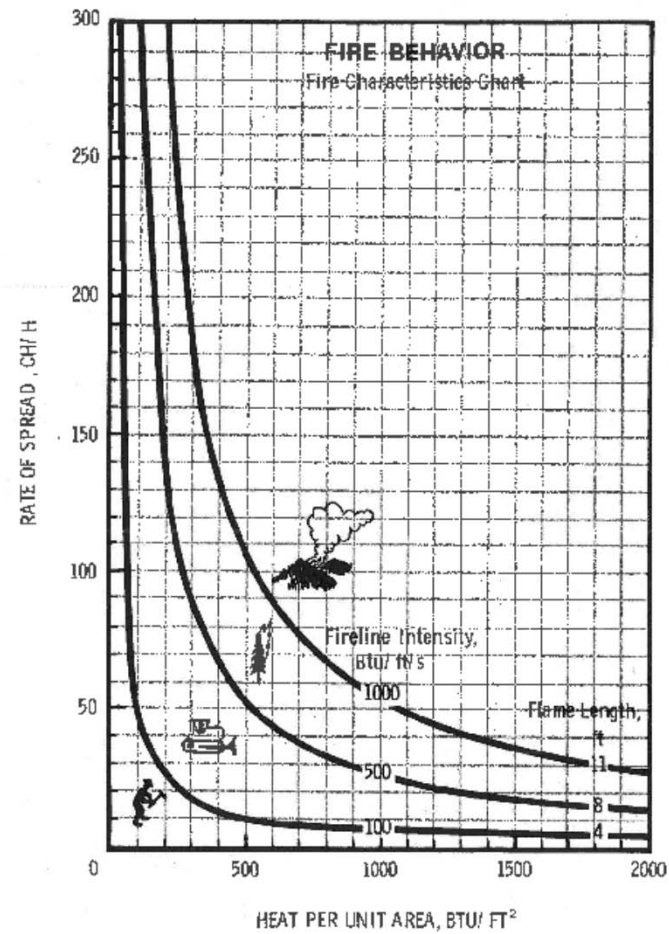
- Flame Length
- Rate of Spread
- Fireline Intensity

FIRE BEHAVIOR Custom Models

- Expected Fire Behavior
- Fuel Treatment Effectiveness



FIRE SUPPRESSION



GTR-RNT-121 Charts for Interpreting Wildland Fire Behavior Characteristics

USFS

LTBMU SUPPRESSION RESOURCES

- 4 Engines (Type 3, 500 gallon)
 - Meyers, Spooner, Meeks Bay
- 2 Type II IA crews (20 Person)
 - Meyers
- Available Resources (adjacent USFS units)
 - Type 1 and 2 helicopters
 - Dozers
 - Air Tankers











FIRE SUPPRESSION TACTICS

- DIRECT ATTACK
- INDIRECT ATTACK

DIRECT ATTACK

- SAFEST
- LEAST AMOUNT OF ACREAGE BURNED

INDIRECT ATTACK

- UTILIZED WHEN DIRECT ATTACK IS NOT AN OPTION
- TOPOGRAPHY, FUELS OR WEATHER MAKE UNSAFE FOR DIRECT ATTACK

PRESCRIBED FIRE

- RESTORE FIRE INTO A FIRE ADAPTED ECOSYSTEM
- NUTRIENT CYCLING

In-Season Prescribed Burning Lake Tahoe Basin Mgmt. Unit



Resource Mgmt. Goals and Objectives

- The resource management goal of these projects is the reduction of wildfire hazard by thinning trees and herbaceous brush near residential areas. The objective of pile burning is to consume slash piles and/or jackpot concentrations of fuels in a carefully controlled and environmentally acceptable fashion. This will reduce the fuel loading to an identified acceptable level.
- Minimize crown scorch on adjacent live trees by igniting pile near tree bole first and/or reducing convective heat by water or foam application. Consider leaving problem slash piles that threaten live crowns of nearby trees as wildlife habitat piles.
- Leave at least 1 to 3 piles per acre for wildlife habitat at project sites. **Habitat piles not required** for contiguous groups of Burton/Santini locations for less than 8 acres.
- Utilize highway and/or roadside prescribed burn signs at all locations.
- No "pile creep" allowed on to non National Forest land. No pile creep allowed in urban lot locations.
- "Pile creep" allowed on Units on National Forest land if adequate resources are available to keep "in check". Predicted and/or observed fire behavior and weather conditions are favorable, and adjacent unburned fuelbeds are not an immediate threat.
- Minimize smoke intrusion into populated areas.
- Promote a positive image with the media and the public.

Mop-up standards

- Burn Boss to ignite only what can be extinguished by 2000 hrs.
- 100 % mop-up
- Utilize foam and MIST tactics
- Patrol and monitor until no smoke has been visible for 48 hrs. Continue to monitor as conditions warrant.

Risk Mgmt. and Mitigation

1. Situation Awareness

- Weather Forecast
- Topography
- Fire History
- Local Factors
- Exposures
- Local Wx Factors
- Complicating Factors

2. Hazard Assessment/Control

- Potential Fire Behavior
- Safety Hazards
- Severity vs. Probability
- Necessary Controls

Risk Mgmt. and Mitigation

4. Decision Point

- Are controls in place for identified hazards
- Met go-no-go checklist
- Resources briefed and in place
- Do you know what you don't know ?

5. Evaluate

- Current and expected weather forecasts and fire behavior
- Road access/location
- Hydrant/water availability
- Smoke column height, direction and dispersal
- Continuous evaluation

Fire Prescription

- **NFFL Fuel Model 5** (Shrub Group: carrier is usually litter and grasses in the understory.)

<u>Environmental variables</u>	<u>HOT</u>	<u>COOL</u>
Relative Humidity %	15	100
Mid flame wind speed (mph)	10	0
Wind Direction	n/a	n/a
Temperature Deg .F	75	20-40
Live Fuel Moisture %	100	100-200
Dead Fuel Moisture %		
1 Hr. T/L	5	12
10 Hr. T/L	7	13
100 Hr. T/L	9	14
1000 Hr. T/L	8-14	15+
Soil / Duff Moisture %	n/a	n/a
Probability of Ignition	53	20

<u>PREDICTED FIRE BEHAVIOR</u>	<u>HOT</u>	<u>COOL</u>
Flame length (feet)	10	2
Effective wind speed (mph)	10	3
Scorch height (ft.)	53	1
Forward Rate of Spread (chains/hr.)	64	4
Spotting Distance (miles)	0.2	0

Fire Prescription

- **NFFL Fuel Model 8** (Timber Litter Group: slow burning ground fires in closed canopy short needle forests, carrier is needle cast and twigs.)

<u>Environmental variables</u>	<u>HOT</u>	<u>COOL</u>
Relative Humidity %	15	100
Mid flame wind speed (mph)	10	0
Wind Direction	n/a	n/a
Temperature Deg .F	75	20-40
Live Fuel Moisture %	100	100-200
Dead Fuel Moisture %		
1 Hr. T/L	5	12
10 Hr. T/L	7	13
100 Hr. T/L	9	14
1000 Hr. T/L	8-14	15+
Soil / Duff Moisture %	n/a	n/a
Probability of Ignition	53	20

<u>PREDICTED FIRE BEHAVIOR</u>	<u>HOT</u>	<u>COOL</u>
Flame length (feet)	2	1
Effective wind speed (mph)	10	3
Scorch height (ft.)	1	1
Forward Rate of Spread (chains/hr.)	6	1
Spotting Distance (miles)	0	0

Fire Prescription

- **NFFL Fuel Model 9** (Timber Group: Long needle conifers, carrier is usually surface litter with occasional torching, crowning and spotting.)

<u>Environmental variables</u>	<u>HOT</u>	<u>COOL</u>
Relative Humidity %	15	100
Mid flame wind speed (mph)	10	0
Wind Direction	n/a	n/a
Temperature Deg .F	75	20-40
Live Fuel Moisture %	100	100-200
Dead Fuel Moisture %		
1 Hr. T/L	5	12
10 Hr. T/L	7	13
100 Hr. T/L	9	14
1000 Hr. T/L	8-14	15+
Soil / Duff Moisture %	n/a	n/a
Probability of Ignition	53	20

<u>PREDICTED FIRE BEHAVIOR</u>	<u>HOT</u>	<u>COOL</u>
Flame length (feet)	5	1
Effective wind speed (mph)	10	3
Scorch height (ft.)	14	1
Forward Rate of Spread (chains/hr.)	30	1
Spotting Distance (miles)	0.1	0

Fire Prescription

- **NFFL Fuel Model 10** (Timber Group: Carrier is ground litter with an increase of larger 3” or greater limb wood, any timber type with heavy fuel loading of down wood. Carrier is surface and ground fuels.)

<u>Environmental variables</u>	<u>HOT</u>	<u>COOL</u>
Relative Humidity %	15	100
Mid flame wind speed (mph)	10	0
Wind Direction	n/a	n/a
Temperature Deg .F	75	20-40
Live Fuel Moisture %	100	100-200
Dead Fuel Moisture %		
1 Hr. T/L	6	12
10 Hr. T/L	8	13
100 Hr. T/L	10	14
1000 Hr. T/L	8-14	15+
Soil / Duff Moisture %	n/a	n/a
Probability of Ignition	53	20

<u>PREDICTED FIRE BEHAVIOR</u>	<u>HOT</u>	<u>COOL</u>
Flame length (feet)	8	3
Effective wind speed (mph)	10	3
Scorch height (ft.)	39	6
Forward Rate of Spread (chains/hr.)	23	3
Spotting Distance (miles)	0.2	0

“2011” In-Season project Areas

- **El Dorado County**
 1. Pioneer Trail Urban Lots
 2. Glenridge Urban Lots
 3. Fallen Leaf Urban Lots
 4. Rubicon Bay Urban Lot,

“2011” In-Season project Areas

- **Placer County**
 1. Blackwood Urban Lots
 2. Tahoe City Urban Lots

“2011” In-Season project Areas

- **Douglas County**
 1. Kingsbury Urban Lots