Big Jack East Behave Runs

Current Condition Inputs

Inputs: SURFACE, CROWN, MORTALITY

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		gs2, tu5, tl6, tl9
Fuel/Vegetation, Overstory		
Canopy Height	ft	50
Canopy Base Height	ft	6
Canopy Bulk Density	lb/ft3	.0041
Mortality Tree Species		PIJE
D.B.H.	in	15
Fuel Moisture		
1-h Fuel Moisture	%	2
10-h Fuel Moisture	%	4
100-h Fuel Moisture	%	7
Live Herbaceous Fuel Moisture	%	31
Live Woody Fuel Moisture	%	69
Foliar Moisture	%	100
Weather		
20-ft Wind Speed (upslope)	mi/h	17
Wind Adjustment Factor		.3
Air Temperature	oF	82
Terrain		
Slope Steepness	%	10

Current Condition Outputs

Fuel Model	Surface Fire Rate of Spread	Surface Flame Length	Crown Fire Is Active?	Crown Fire Type	Active Crown ROS	Active Crown FL	Passive Crown ROS	Passive Crown FL	Prob of Mortality

	ch/h	ft			ch/h	ft	ch/h	ft	%
gs2	39.7	7.3	No	Torching	67.7	37.0	51.1	21.3	80
tu5	14.0	9.7	No	Torching	67.7	63.4	42.9	42.1	80
tl6	9.5	3.8	No	Surface	67.7	36.9	9.5	4.3	8
tl9	13.9	6.5	No	Torching	67.7	45.4	35.8	23.2	76

Grapple Pile and Burn Post Treatment

Inputs: SURFACE, CROWN, MORTALITY

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		tl6, tl1
Fuel/Vegetation, Overstory		
Canopy Height	ft	75
Canopy Base Height	ft	10
Canopy Bulk Density	lb/ft3	.0017
Mortality Tree Species		PIJE
D.B.H.	in	24
Fuel Moisture		
1-h Fuel Moisture	%	2
10-h Fuel Moisture	%	4
100-h Fuel Moisture	%	7
Live Herbaceous Fuel Moisture	%	31
Live Woody Fuel Moisture	%	69
Foliar Moisture	%	100
Weather		
20-ft Wind Speed (upslope)	mi/h	17
Wind Adjustment Factor		.3
Air Temperature	oF	82
Terrain		
Slope Steepness	%	10

Grapple Pile Outputs

Fuel Model	Surface Fire Rate of Spread	Surface Flame Length	Crown Fire Is Active?	Crown Fire Type	Active Crown ROS	Active Crown FL	Passive Crown ROS	Passive Crown FL	Prob of Mortality
	ch/h	ft			ch/h	ft	ch/h	ft	%
tl6	9.5	3.8	No	Surface	67.7	29.8	9.5	4.3	6
tl1	1.4	0.8	No	Surface	67.7	23.3	1.4	0.5	6

Mastication Post Treatment Inputs

Inputs: SURFACE, CROWN, MORTALITY

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		sb1, tl5
Fuel/Vegetation, Overstory		
Canopy Height	ft	75
Canopy Base Height	ft	10
Canopy Bulk Density	lb/ft3	.0017
Mortality Tree Species		PIJE
D.B.H.	in	24
Fuel Moisture		
1-h Fuel Moisture	%	2
10-h Fuel Moisture	%	4
100-h Fuel Moisture	%	7
Live Herbaceous Fuel Moisture	%	31
Live Woody Fuel Moisture	%	69
Foliar Moisture	%	100
Weather		
20-ft Wind Speed (upslope)	mi/h	17
Wind Adjustment Factor		.3
Air Temperature	oF	82
Terrain		

Slope Steepness	%	10

Mastication Post Treatment Outputs

Fuel Model	Surface Fire Rate of Spread	Surface Flame Length	Crown Fire Is Active?	Crown Fire Type	Active Crown ROS	Active Crown FL	Passive Crown ROS	Passive Crown FL	Prob of Mortality
	ch/h	ft			ch/h	ft	ch/h	ft	%
sb1	9.7	4.2	No	Surface	67.7	31.6	9.7	5.1	7
tl5	7.0	2.9	No	Surface	67.7	27.9	7.0	3.0	6

Hand Pile and Burn Post Treatment Inputs

Inputs: SURFACE, CROWN, MORTALITY

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		tl8, tl6
Fuel/Vegetation, Overstory		
Canopy Height	ft	50
Canopy Base Height	ft	10
Canopy Bulk Density	lb/ft3	.0017
Mortality Tree Species		PIJE
D.B.H.	in	24
Fuel Moisture		
1-h Fuel Moisture	%	2
10-h Fuel Moisture	%	4
100-h Fuel Moisture	%	7
Live Herbaceous Fuel Moisture	%	31
Live Woody Fuel Moisture	%	69
Foliar Moisture	%	100
Weather		
20-ft Wind Speed (upslope)	mi/h	17

Wind Adjustment Factor		.3
Air Temperature	oF	82

Terrain

Slope Steepness	%	10

Notes

Hand Pile and Burn Post Treatment Outputs

Fuel Model	Surface Fire Rate of Spread	Surface Flame Length	Crown Fire Is Active?	Crown Fire Type	Active Crown ROS	Active Crown FL	Passive Crown ROS	Passive Crown FL	Prob of Mortality
	ch/h	ft			ch/h	ft	ch/h	ft	%
tl8	9.3	4.5	No	Surface	67.7	29.3	9.3	5.7	11
tl6	9.5	3.8	No	Surface	67.7	24.9	9.5	4.3	7

Jackpot Burn Post treatment Inputs

Inputs: SURFACE, CROWN, MORTALITY

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		tl1, tl6
Fuel/Vegetation, Overstory		
Canopy Height	ft	75
Canopy Base Height	ft	10
Canopy Bulk Density	lb/ft3	.0017
Mortality Tree Species		PIJE
D.B.H.	in	24
Fuel Moisture		
1-h Fuel Moisture	%	2
10-h Fuel Moisture	%	4
100-h Fuel Moisture	%	7
Live Herbaceous Fuel Moisture	%	31

Live Woody Fuel Moisture	%	69
Foliar Moisture	%	100
Weather		
20-ft Wind Speed (upslope)	mi/h	17
Wind Adjustment Factor		.3
Air Temperature	oF	82
Terrain		
Slope Steepness	%	10
Notes		

Jackpot Burn Post Treatment Outputs

Fuel Model	Surface Fire Rate of Spread	Surface Flame Length	Crown Fire Is Active?	Crown Fire Type	Active Crown ROS	Active Crown FL	Passive Crown ROS	Passive Crown FL	Prob of Mortality
	ch/h	ft			ch/h	ft	ch/h	ft	%
tl1	1.4	0.8	No	Surface	67.7	23.3	1.4	0.5	6
tl6	9.5	3.8	No	Surface	67.7	29.8	9.5	4.3	6

Underburn Post Treatment Inputs

Inputs: SURFACE, CROWN, MORTALITY

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		tl1, tl3
Fuel/Vegetation, Overstory		
Canopy Height	ft	75
Canopy Base Height	ft	10
Canopy Bulk Density	lb/ft3	.0017
Mortality Tree Species		PIJE
D.B.H.	in	24
Fuel Moisture		
1-h Fuel Moisture	%	2

10-h Fuel Moisture	%	4
100-h Fuel Moisture	%	7
Live Herbaceous Fuel Moisture	%	31
Live Woody Fuel Moisture	%	69
Foliar Moisture	%	100
Weather		
20-ft Wind Speed (upslope)	mi/h	17
Wind Adjustment Factor		.3
Air Temperature	oF	82
Terrain		
Slope Steepness	%	10
Notes		

Underburn Post Treatment Outputs

Fuel Model	Surface Fire Rate of Spread	Surface Flame Length	Crown Fire Is Active?	Crown Fire Type	Active Crown ROS	Active Crown FL	Passive Crown ROS	Passive Crown FL	Prob of Mortality
	ch/h	ft			ch/h	ft	ch/h	ft	%
tl1	1.4	0.8	No	Surface	67.7	23.3	1.4	0.5	6
tl3	2.7	1.4	No	Surface	67.7	25.1	2.7	1.1	6

Plantation Inputs Current Conditions

Inputs: SURFACE, CROWN, MORTALITY		
Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		tu5, gs2
Fuel/Vegetation, Overstory		
Canopy Height	ft	30

	Canopy Base Height	ft	2
	Canopy Bulk Density	lb/ft3	0.0041
	Mortality Tree Species		pinjef
	D.B.H.	in	6
Fuel Moisture			
	1-h Moisture	%	2
	10-h Moisture	%	4
	100-h Moisture	%	7
	Live Herbaceous Moisture	%	31
	Live Woody Moisture	%	69
	Foliar Moisture	%	100
Weather			
	20-ft Wind Speed (upslope)	mi/h	17
	Wind Adjustment Factor		.3
	Air Temperature	oF	82
Terrain			
	Slope Steepness	%	10

Plantation Current Condition Outputs

Fuel Model	ROS (max)	Flame Length	Critical Surf Int	Trans Ratio	Transition to Crown?	Crown Fire ROS	Critical Crown ROS	Active Ratio	Active Crown?	Fire Type	Prob of Mortality
	ch/h	ft	Btu/ft/s			ch/h	ch/h				%
tu5	14.0	9.7	23	34.58	Yes	67.7	136.2	0.50	No	Torching	80
gs2	39.7	7.3	23	18.51	Yes	67.7	136.2	0.50	No	Torching	80

Plantation Inputs Post Treatment

Inputs: SURFACE, CROWN, MORTALITY

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		sb1 custom model, tl5
Fuel/Vegetation, Overstory		
Canopy Height	ft	30
Canopy Base Height	ft	6
Canopy Bulk Density	lb/ft3	0.0017
Mortality Tree Species		PINJEF
D.B.H.	in	6
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	4
100-h Moisture	%	7
Live Herbaceous Moisture	%	31
Live Woody Moisture	%	69
Foliar Moisture	%	100
Weather		
20-ft Wind Speed (upslope)	mi/h	17
Wind Adjustment Factor		.3
Air Temperature	oF	82
Terrain		
Slope Steepness	%	10

Plantation Post Treatment Outputs

Fuel Model	ROS (max)	Flame Length	Critical Surf Int	Trans Ratio	Transition to Crown?	Crown Fire ROS	Critical Crown ROS	Active Ratio	Active Crown?	Fire Type	Prob of Mortality

	ch/h	ft	Btu/ft/s			ch/h	ch/h				%
Custom sb1	8.4	3.8	120	0.85	No	67.7	328.6	0.21	No	Surface	16
tl5	7.0	2.9	120	0.48	No	67.7	328.6	0.21	No	Surface	7

The plantations were modeled separately than the rest of the project for both current conditions and post treatment conditions. The trees are smaller/younger and the canopy base heights (CBH) are lower which makes a difference with crown fire activity and tree mortality. For post treatment, a custom fuel model and tl5 were used for fire behavior modeling. The custom fuel model is the sb1 but with .9 of the fuel bed instead of the full foot. These plantations have a lower canopy base height as well. For current conditions a CBH of 2 feet was used, for post treatment it was raised to 6 feet. The trees have a thin bark as they are still young, making them more susceptible to mortality in the event of a wildfire.