

# Delleker North Hazardous Fuel Reduction

Fuels & Fire Behavior Assessment



Project Funded by the Plumas NF with USDA Forest Service's "Community Protection" program funds to reduce fuels on 50 acres.

# Wildland Fire Behavior Factors

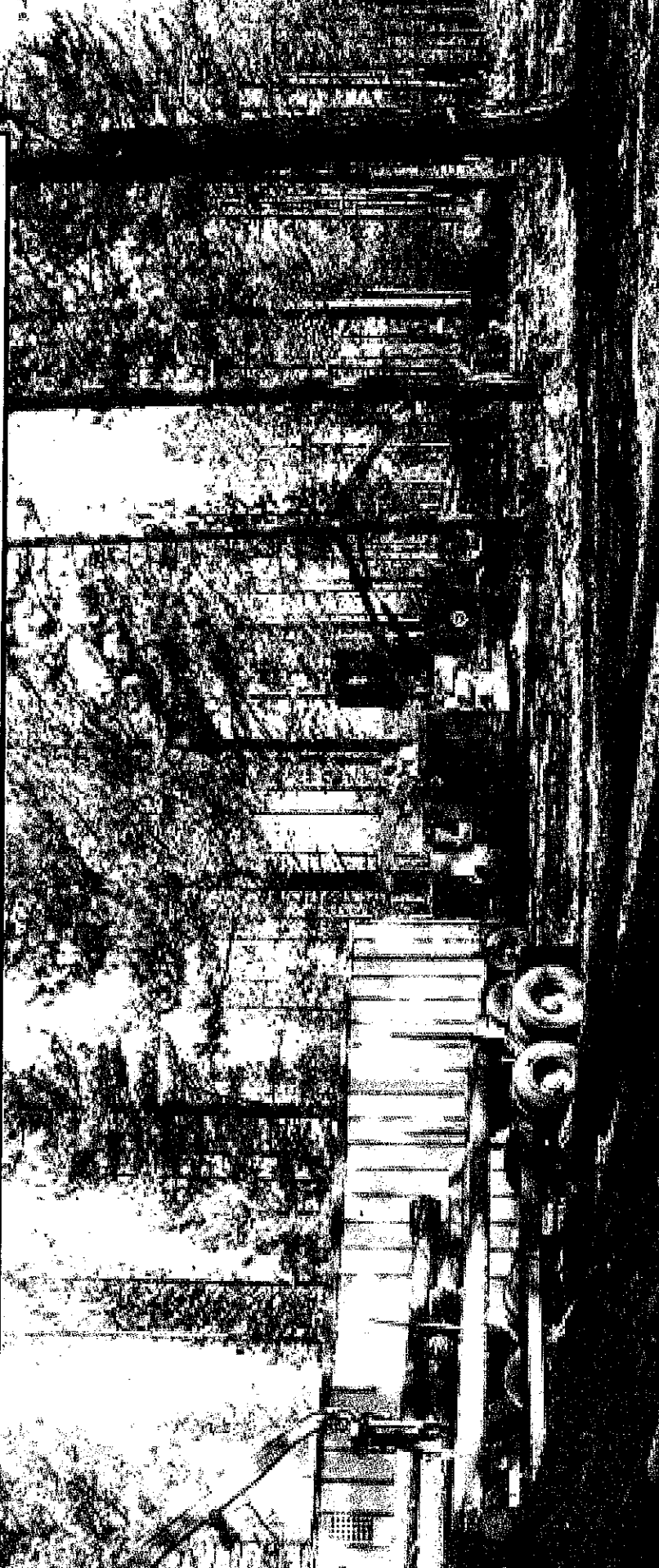
- \* **Fire Intensity** - (Flame Length (FL) in feet)
- \* **Crowning Potential** - (FL + Crown to base height)
- \* **Spotting Potential** - (FL + Crowning = ember production)
- \* **Resistance to Control (RTC)** - (FL + spotting + volume of fuel)

# Fuelbed Factors Affecting Intensity, Crowning & Spotting Potential

- Fuel Loading (Tons/acre by size)
- Fuel Arrangement (Horizontal & Vertical)
- Fuel Layers (Surface-Ladder-Canopy)

# **Delleker North HFR**

## **Mechanical Commercial Thinning of Stands**



**Surface Fuels** – Scattered brush and heavy pockets of needles were disturbed and compacted in operations.

**Ladder Fuels** – Trees were mechanically thinned.

Small trees were cut and chipped as biomass

Trees greater than 12-14” were harvested as sawlogs

**Canopy Fuels** – Trees were thinned and harvested.

# ***Delleker North HFR***

**Commercial Thinning of Stands  
Pre-Treatment - Plot 1**

## ***Expected Fire Conditions***

Surface Flame Length = <4 Feet

Crowning Potential = High

Spotting Potential = High

Resistance to Control = Moderate



***Delleker North HFR***  
**Commercial Thinning of Stands**  
**Post Treatment - Plot 1**

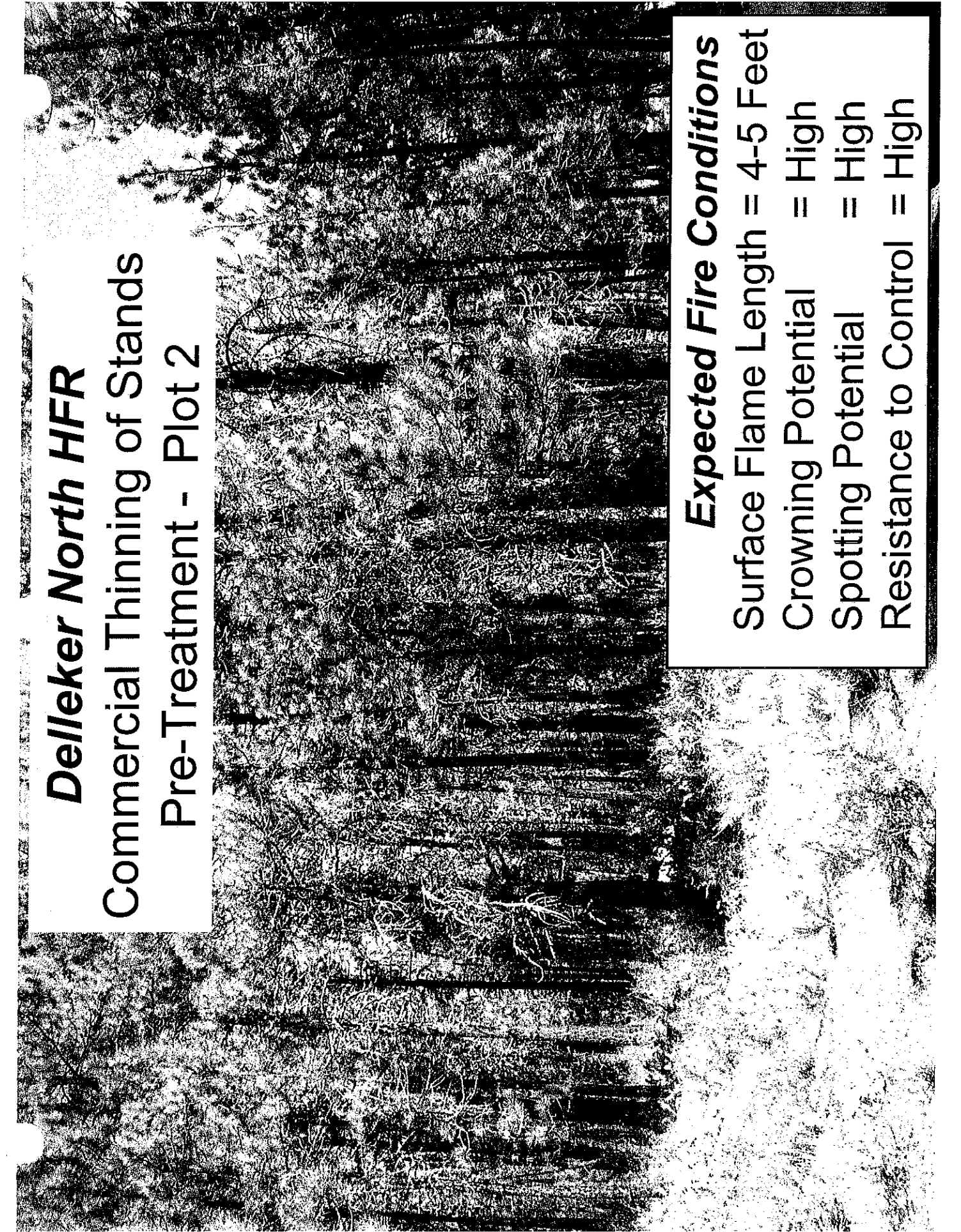
***Expected Fire Conditions***

Surface Flame Length = 2-4 Feet

Crowning Potential = Low

Spotting Potential = Low

Resistance to Control = Low



***Delleker North HFR***  
**Commercial Thinning of Stands**  
**Pre-Treatment - Plot 2**

***Expected Fire Conditions***

Surface Flame Length = 4-5 Feet

Crowning Potential = High

Spotting Potential = High

Resistance to Control = High

## ***Delleker North HFR***

**Commercial Thinning of Stands  
Post-Treatment - Plot 1**

### ***Expected Fire Conditions***

Surface Flame Length = <4 Feet

Crowning Potential = Low

Spotting Potential = Low

Resistance to Control = Low



***Delleker North HFR***  
Commercial Thinning of Stands  
Pre-Treatment - Plot 3



***Expected Fire Conditions***

Surface Flame Length = 4-5 Feet

Crowning Potential = High

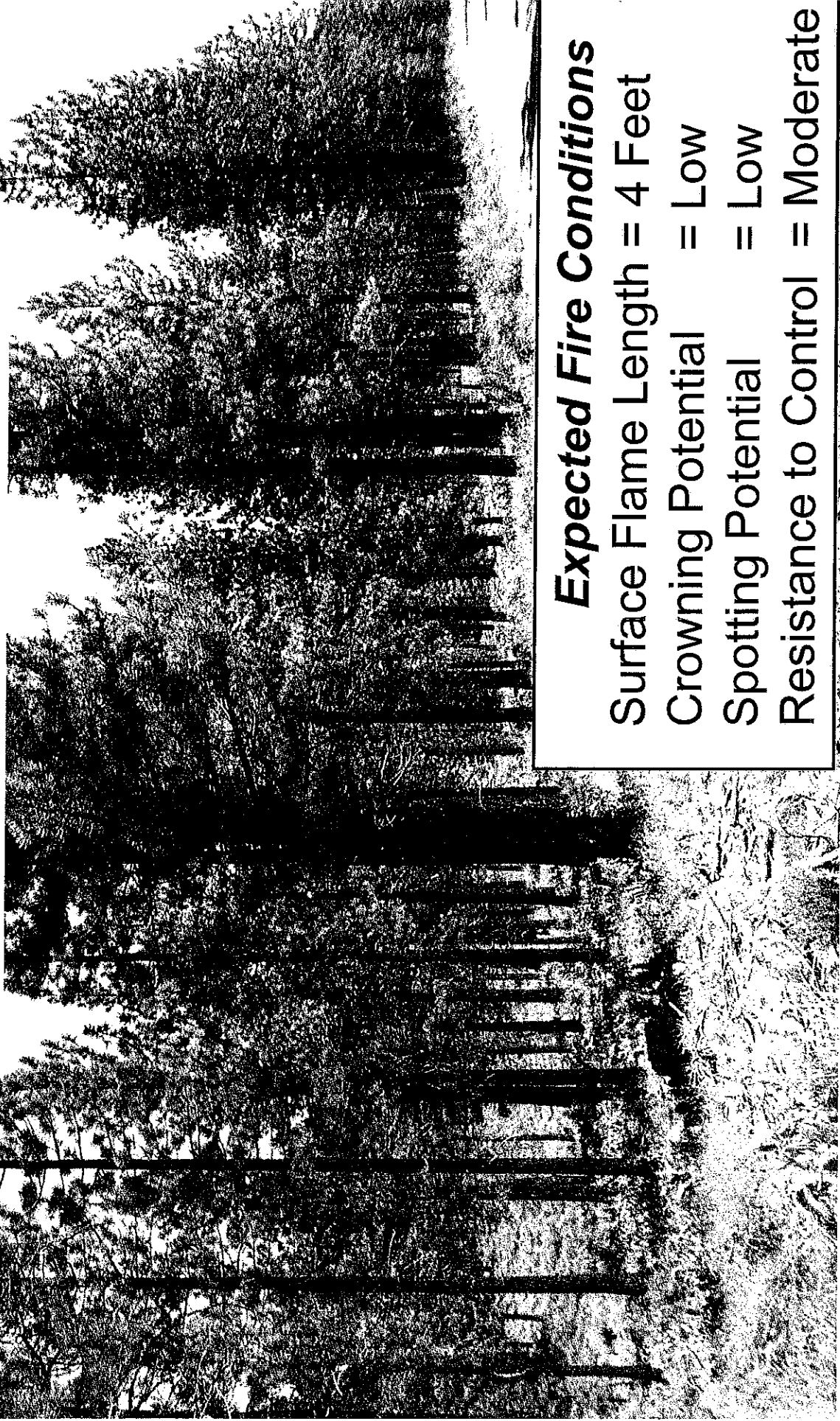
Spotting Potential = High

Resistance to Control = High

# ***Delleker North HFR***

## **Commercial Thinning of Stands**

### **Pre-Treatment - Plot 3**



#### ***Expected Fire Conditions***

Surface Flame Length = 4 Feet

Crowning Potential = Low

Spotting Potential = Low

Resistance to Control = Moderate

## **Delleker North HFR**

### **Mastication of non-commercial stands**



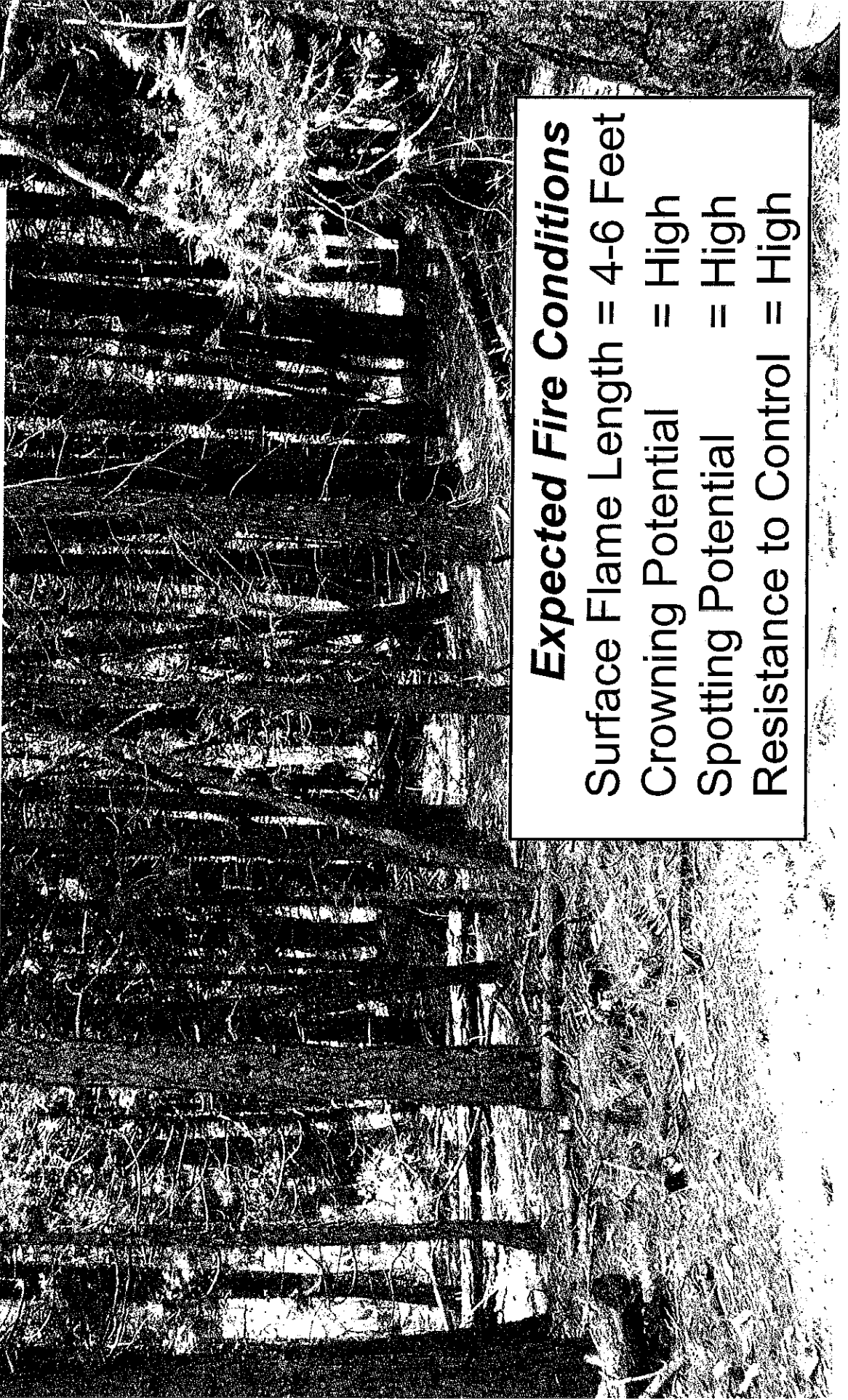
**Surface Fuels** – Brush and scattered trees were rearranged in the masticating operation.

**Ladder Fuels** – Trees were mechanically thinned by a masticator to a spacing of approximately 20 feet.

**Canopy Fuels** – Due to stand conditions, no trees harvested as sawlogs.

# ***Delleker North HFR***

**Mastication of non-commercial stands  
Pre-Treatment**



## ***Expected Fire Conditions***

Surface Flame Length = 4-6 Feet

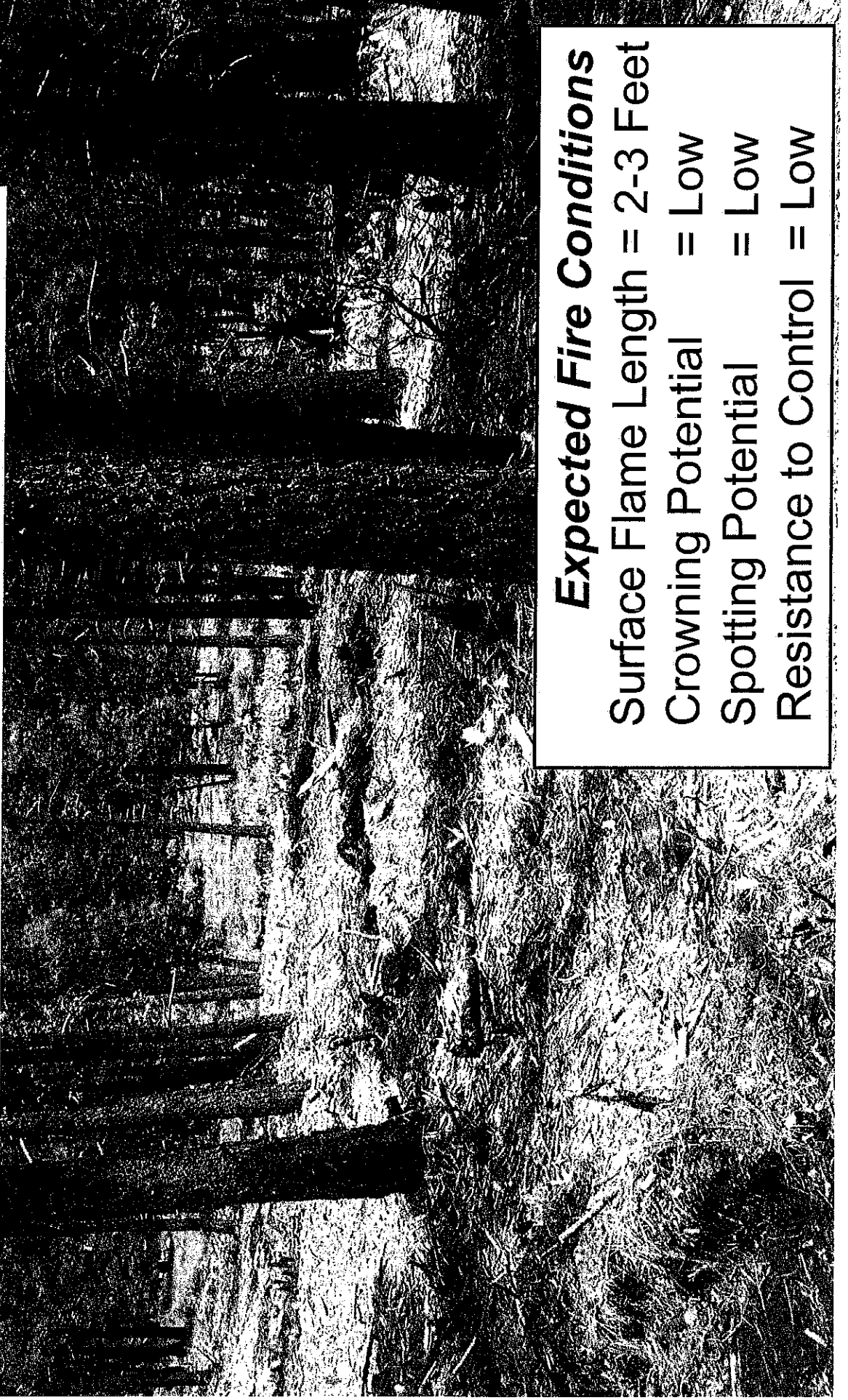
Crowning Potential = High

Spotting Potential = High

Resistance to Control = High

## ***Delleker North HFR***

**Mastication of non-commercial stands  
Post Treatment**



### ***Expected Fire Conditions***

Surface Flame Length = 2-3 Feet

Crowning Potential = Low

Spotting Potential = Low

Resistance to Control = Low

# **Delleker North HFR**

## **Mastication of Prior Activity Slash in Commercially Thinned Stands**

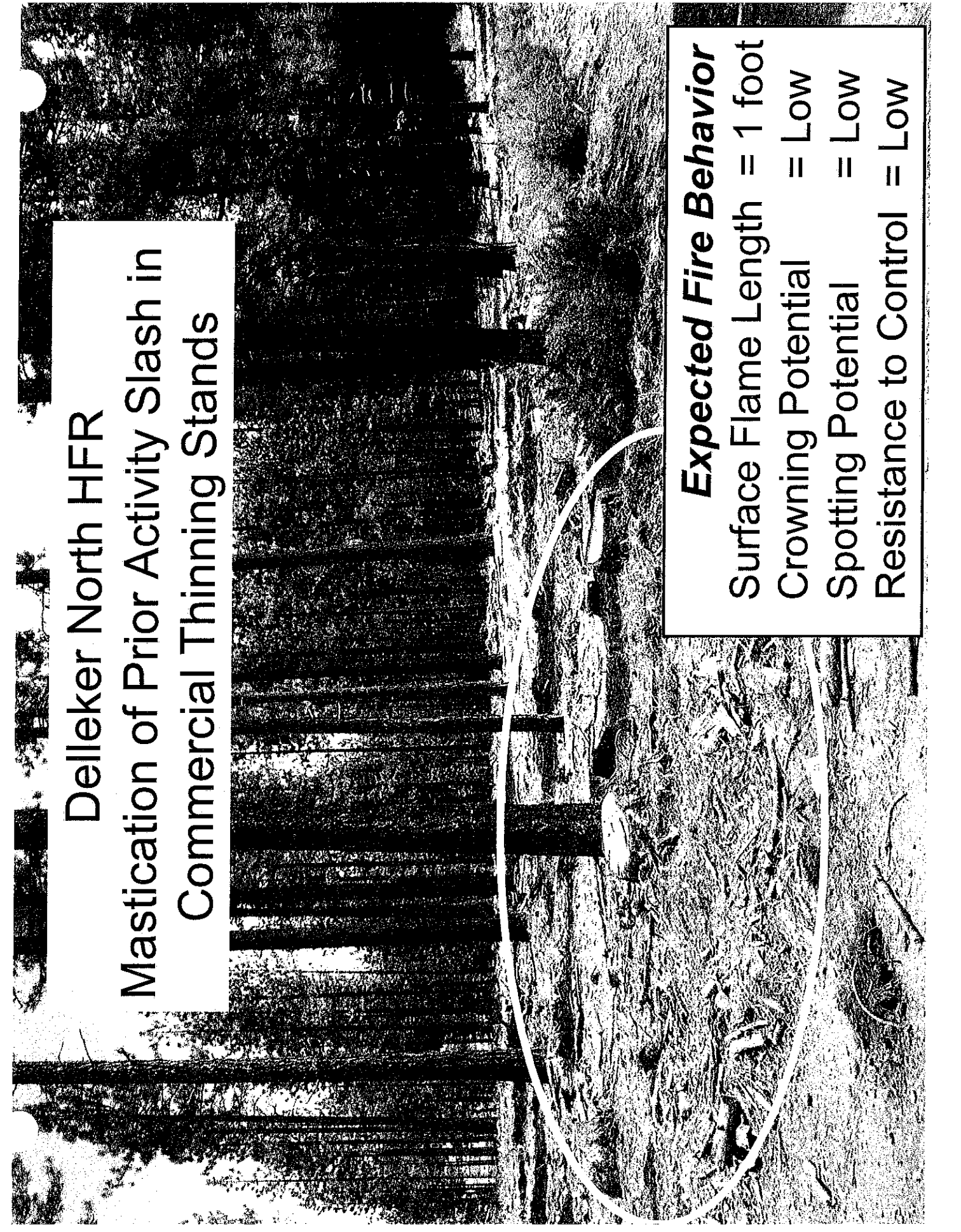


**Surface Fuels** – Pockets were rearranged in masticating operation.  
**Ladder Fuels** – Mechanically thinned in earlier harvesting activity.  
**Canopy Fuels** - Mechanically thinned in earlier harvesting activity.

Delleker North HFR  
Prior Activity Slash in  
Commercially Thinned Stands



**Expected Fire Conditions**  
Surface Flame Length = 4-6 Feet  
Crowning Potential = Low  
Spotting Potential = Low  
Resistance to Control = Moderate

A black and white photograph of a forest. A path or road runs through the center of the image. A white circle is drawn on the ground in the lower right quadrant, highlighting a specific area. The forest consists of many trees, some with bare branches and some with leaves. The ground is covered with dry leaves and twigs.

## Delleker North HFR Mastication of Prior Activity Slash in Commercial Thinning Stands

### ***Expected Fire Behavior***

Surface Flame Length = 1 foot

Crowning Potential = Low

Spotting Potential = Low

Resistance to Control = Low



## ***Delleker north HFR***

Mastication of Prior Activity Slash in Commercially Thinned Stands



### **Fuelbed Changes**

Fuelbed height was lowered, fine fuels were broken down & dirt was mixed into the fuel.

Projected flame lengths dropped from 4-6 feet to 1 foot