

# Burned Area Emergency Response with the US Forest Service

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Soil Program Lead & BAER Coordinator





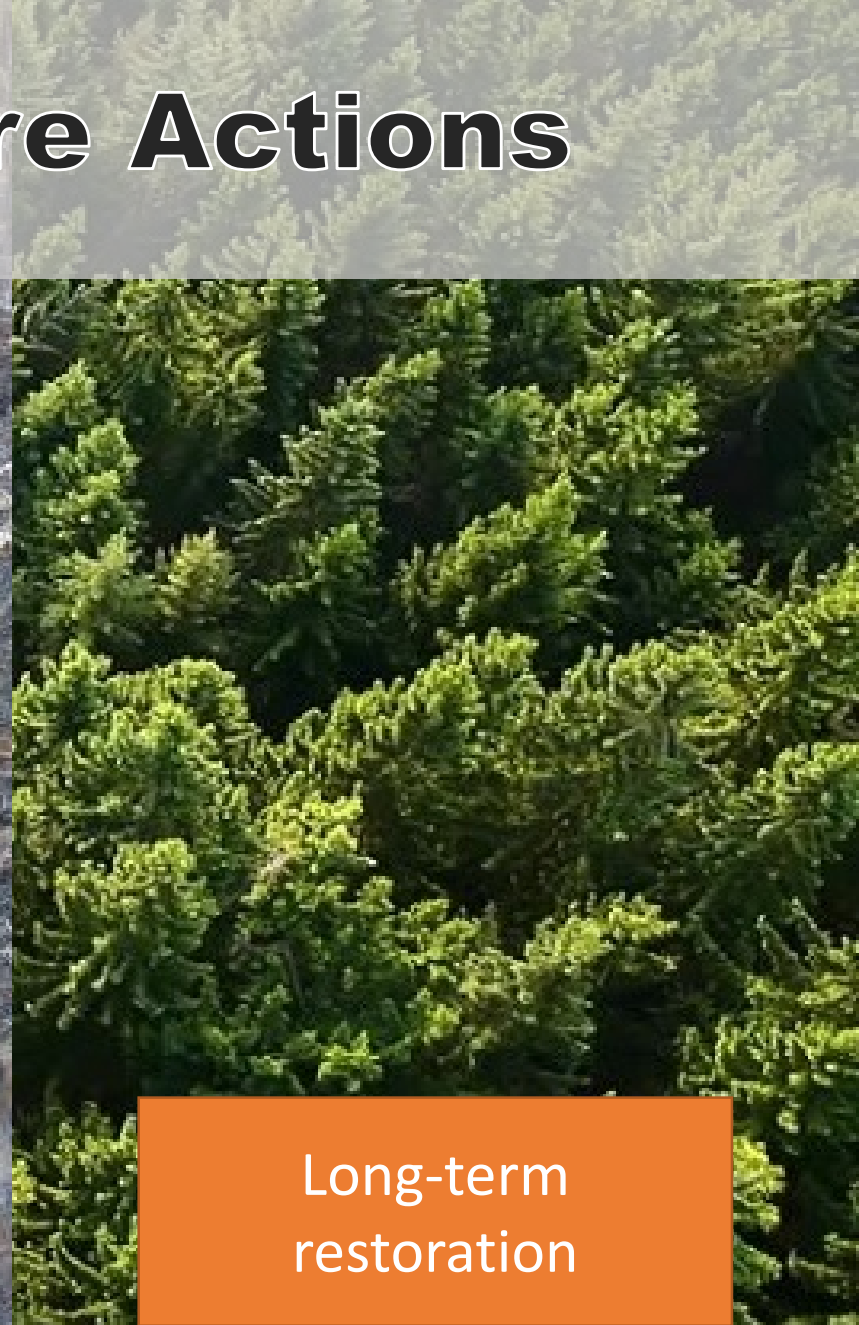
# Three Phases of Post-Fire Actions



Suppression Repair



Burned Area  
Emergency Response  
(BAER)



Long-term  
restoration



# What is BAER?

A program to identify imminent  
post-wildfire threats to

human life and safety

property

natural or cultural resources

on NFS lands

and take immediate actions to  
manage unacceptable risks





# What **BAER** is not

Fire suppression damage repair

Restoration of fire damages

Repair of post-fire flood damages

Long-term fire rehab & restoration

# When does BAER happen?



Fires greater than 500 acres (FS)



Critical values present



BAER Team in place as fire is winding down, typically expect to see the Unit BAER Coordinator or Team lead between 60-70% contained.

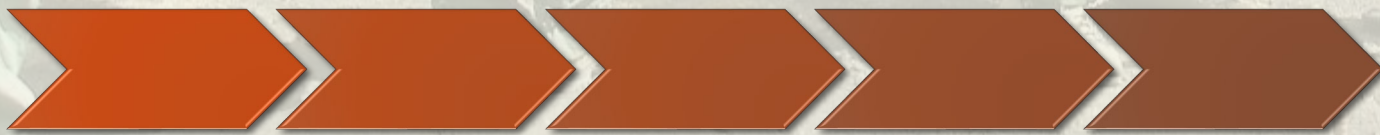


Assessment must be completed and funding requested submitted by 7 days after fire containment.



# The BAER Process

- Step 1. Identify critical values
- Step 2. Assess for threats
- Step 3. Evaluate risk
- Step 4. Develop response strategy
- Step 5. Implement the strategy





# 1. Identify critical values on National Forest Lands potentially affected by the burned area.

Life and Safety  
Property  
Natural Resources  
Cultural Resources





# 2. Assess for Threats and Evaluate Risk



Soil Burn Severity

Geologic Hazards

Erosion and Flooding

Hazard Trees

Non-native species



# 3. BAER Risk Assessment

Each BAER critical value and threat combination is evaluated for risk  
 1 – Magnitude of consequence  
 2 – Probability of damage or loss

Probability of Damage or Loss	Magnitude of Consequences		
	Major (Life loss, substantial/ irreversible damage)	Moderate (Injury of life, long term resource effects)	Minor (no injury, recoverable loss)
	<b>RISK</b>		
Very Likely (>90%)	Very High	Very High	Low
Likely (50-90%)	Very High	High	Low
Possible (10-50%)	High	Intermediate	Low
Unlikely (<10%)	Intermediate	Low	Very Low



# 4. Develop Response Strategy

## 1. Natural Recovery

## 2. Closures/warnings

## 3. Treatments

- Proven effectiveness
- Substantially reduce risk in first year
- Minimal action
- Cost is economically justified
- Can be completed before damage is expected





# Typical Treatments

## Land

Mulching

ED/RR (invasive plants)

## Channel

Check dams

## Road/Trail

Drainage improvements

## Protection and Safety

Warning signs

Hazard removal





# Step 5. Implement

## Timing is Critical!



Measures must be completed before the first damaging events and no later than one year from fire containment!



# BAER Timelines



## Assessment:

Typically 7-10 days

## Authorization:

RO/WO have 3 days to review and respond

## Implementation:

ASAP and no longer than 1 year from containment

## Accomplishment reporting:

Date found in authorization letter



# What about risks to values outside of USFS responsibility?



State, County,  
Local  
Emergency  
Response  
Agencies







**Soil Burn Severity Maps have been finalized  
1<sup>st</sup> round of treatments have been proposed and approved  
Contracting is underway, implementation will begin ASAP**

# **2020 Oregon Wildfires**



## Soil Burn Severity

-  **High soil burn severity:**  
All or nearly all of the pre-fire ground cover and surface organic matter (litter, duff, and fine roots) is generally consumed, and charring may be visible on larger roots. Soil is often gray, orange, or reddish at the ground surface where lamp fuels were concentrated and consumed.
  -  **Moderate soil burn severity:**  
Up to 80 percent of the pre-fire ground cover (litter and ground fuels) may be consumed but generally not all of it. There may be potential for recruitment of effective ground cover from seedbed insects or leaves remaining in the canopy that will soon fall to the ground. Soil structure is generally unchanged.
  -  **Low soil burn severity:**  
The ground surface, including any exposed mineral soil, may appear lightly charred, and the canopy and understory vegetation will likely appear "green."
  -  **Very Low or Unburned:**  
Little to no burn is expected within these areas. Canopy and ground litter completely intact. Little to no vegetation mortality expected.
- For additional information on other types of soil burn severity, see the National Fire Plan Report, "Soil Burn Severity" at <http://www.fireplan.gov/soilburn>.

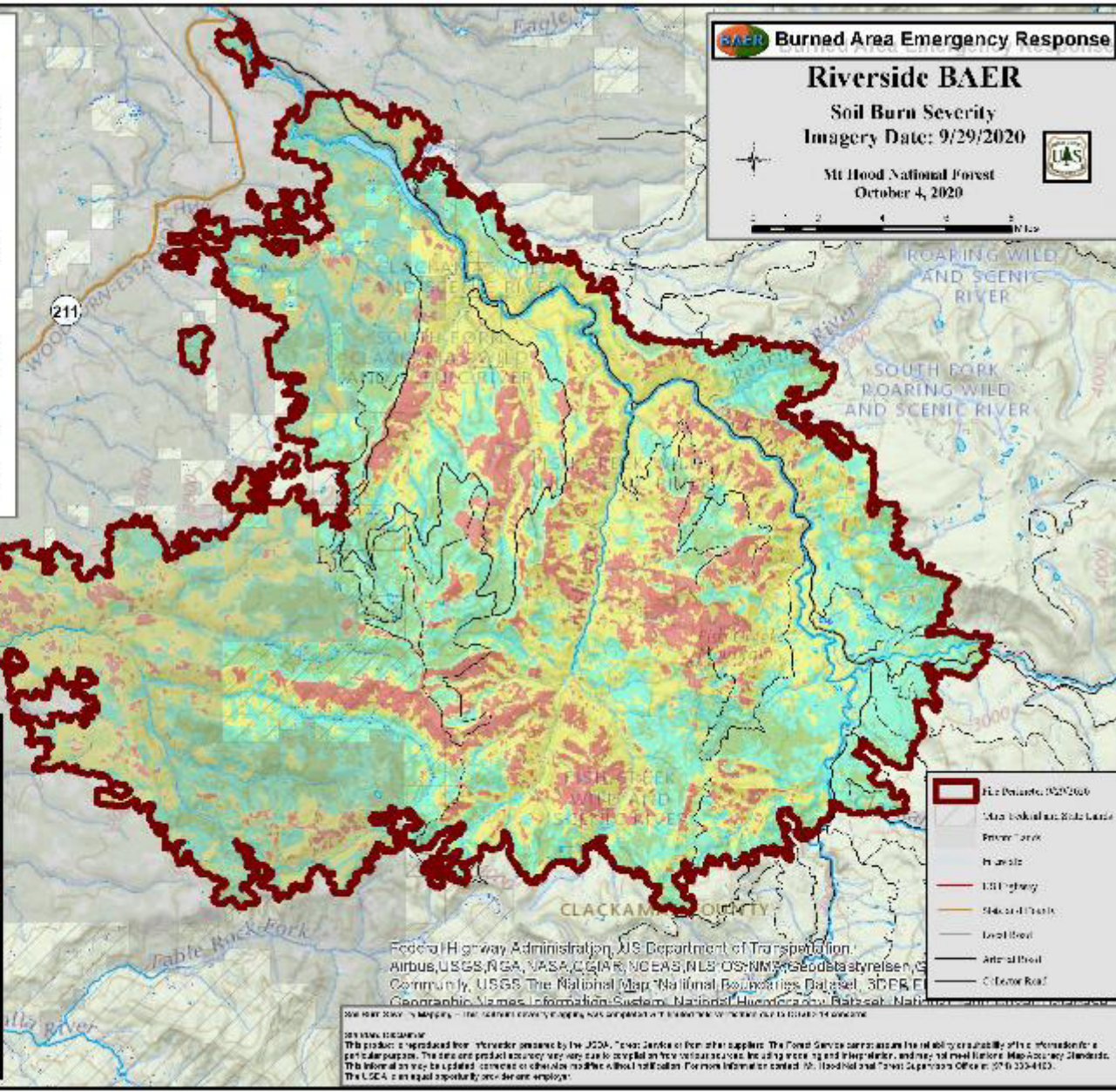
**BAER Burned Area Emergency Response**

**Riverside BAER**

**Soil Burn Severity**

Imagery Date: 9/29/2020

Mt Hood National Forest  
October 4, 2020

# Riverside

Mt Hood National Forest  
138,000 acres

NFS	62%
BLM	8%
State	1%
Private	29%
Unburned	13%
Low	35%
Moderate	40%
High	12%

-  Fire Boundary (02/2006)
-  State Lands
-  Private Land
-  Interstate
-  US Highway
-  State Road
-  Local Road
-  Arterial Road
-  Closure Road

Federal Highway Administration, US Department of Transportation; Airbus, USGS, NASA, VASA, CGIA, NCEAS, NLS, OS, NM, and other data providers; Community, USGS, The National Map, National Boundaries Dataset, 3DPER, Geographic Names Information System, National Hydrography Dataset, National Wetlands Inventory, and other data providers.

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The soil burn severity mapping was completed with limited field verification due to COVID-19 concerns.

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**BAER Burned Area Emergency Response**

**Lionshead BAER**

**Soil Burn Severity**

Imagery Date: 9/29/2020

Willamette, Mt. Hood and Deschutes National Forests  
October 7, 2020



0 5 10 Miles

Fire Perimeter 9/29/2020  
 US Forest Service  
 Interstate  
 US Highway  
 State and County

**Soil Burn Severity**

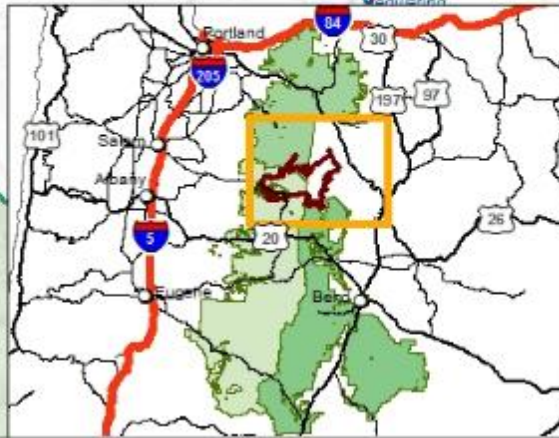
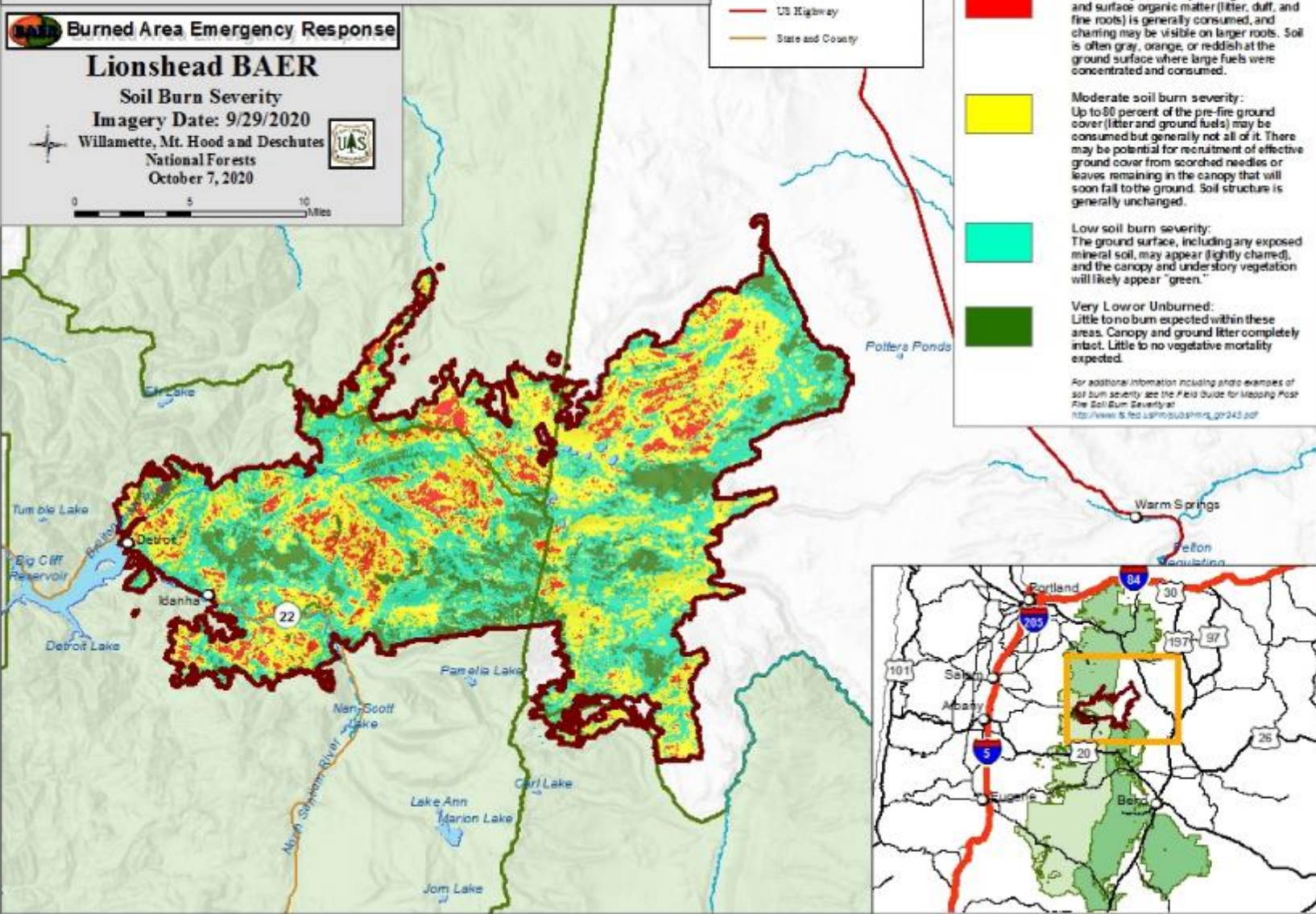
**High soil burn severity:**  
All or nearly all of the pre-fire ground cover and surface organic matter (litter, duff, and fine roots) is generally consumed, and charring may be visible on larger roots. Soil is often gray, orange, or reddish at the ground surface where large fuels were concentrated and consumed.

**Moderate soil burn severity:**  
Up to 80 percent of the pre-fire ground cover (litter and ground fuels) may be consumed but generally not all of it. There may be potential for recruitment of effective ground cover from scorched needles or leaves remaining in the canopy that will soon fall to the ground. Soil structure is generally unchanged.

**Low soil burn severity:**  
The ground surface, including any exposed mineral soil, may appear (lightly charred), and the canopy and understory vegetation will likely appear "green."

**Very Low or Unburned:**  
Little to no burn expected within these areas. Canopy and ground litter completely intact. Little to no vegetative mortality expected.

For additional information including photo examples of soil burn severity see the Field Guide for Mapping Post Fire Soil Burn Severity at: <http://www.fs.fed.us/rm/pubs/misc/gp243.pdf>



# Lionshead

Willamette , Mt Hood,  
Deschutes National Forests

204,000 acres

NFS	51%
BIA	45%
State	<1%
Private	3%
Unburned	14%
Low	38%
Moderate	39%
High	9%



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-  Fire Perimeter
-  US Forest Service
-  State and County

### Soil Burn Severity

-  **High soil burn severity:**  
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**BAER** Burned Area Emergency Response



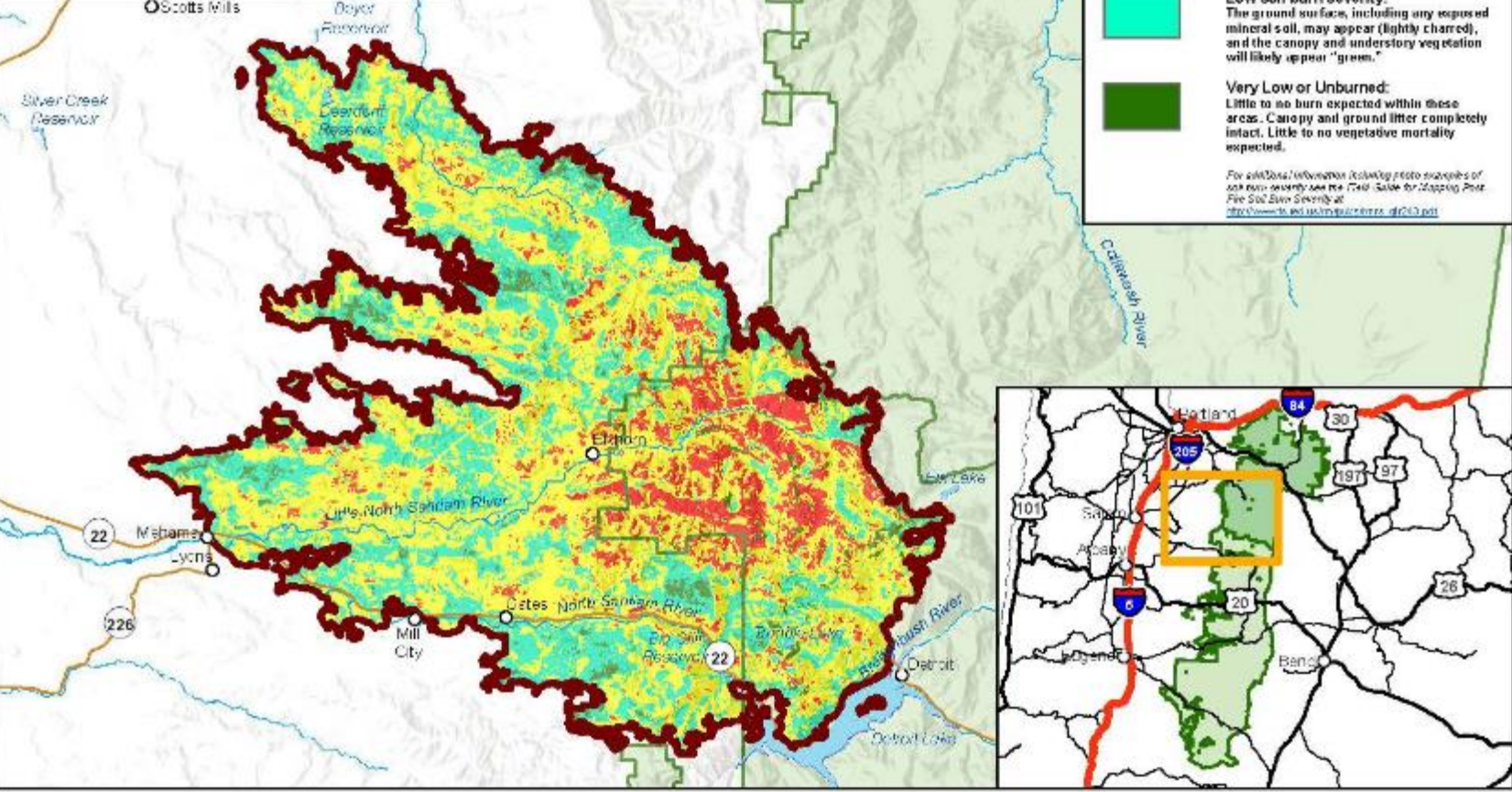
**Beachie Creek BAER**

**Soil Burn Severity**

Imagery Date: 9/29/2020

Willamette and Mt. Hood National Forests

October 7, 2020

# Beachie Creek

## Willamette and Mt Hood National Forests

### 193,000 acres

NFS	26%
BLM	20%
State	12%
Private	41%

Unburned	4%
Low	33%
Moderate	52%
High	11%

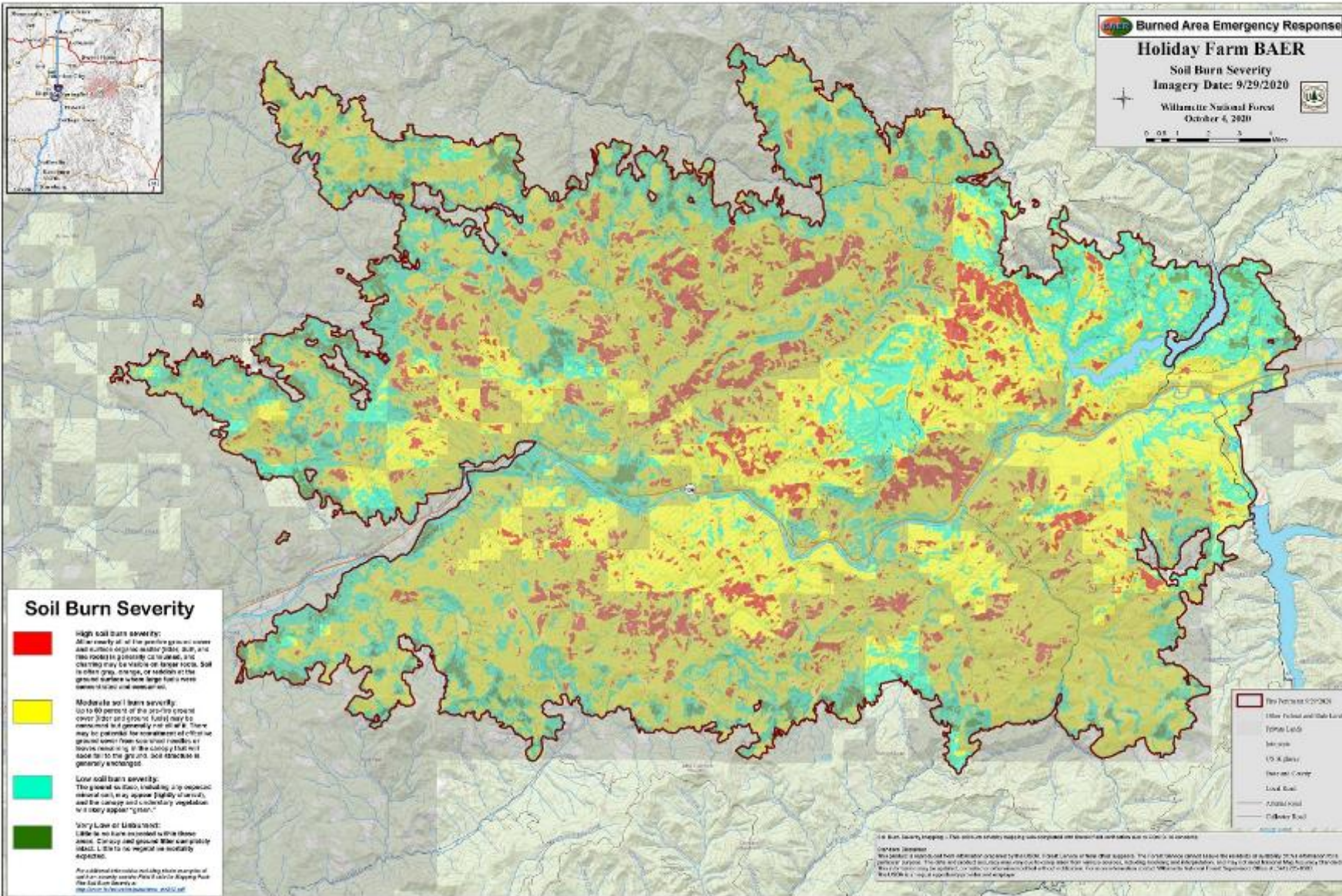


# Holiday Farm

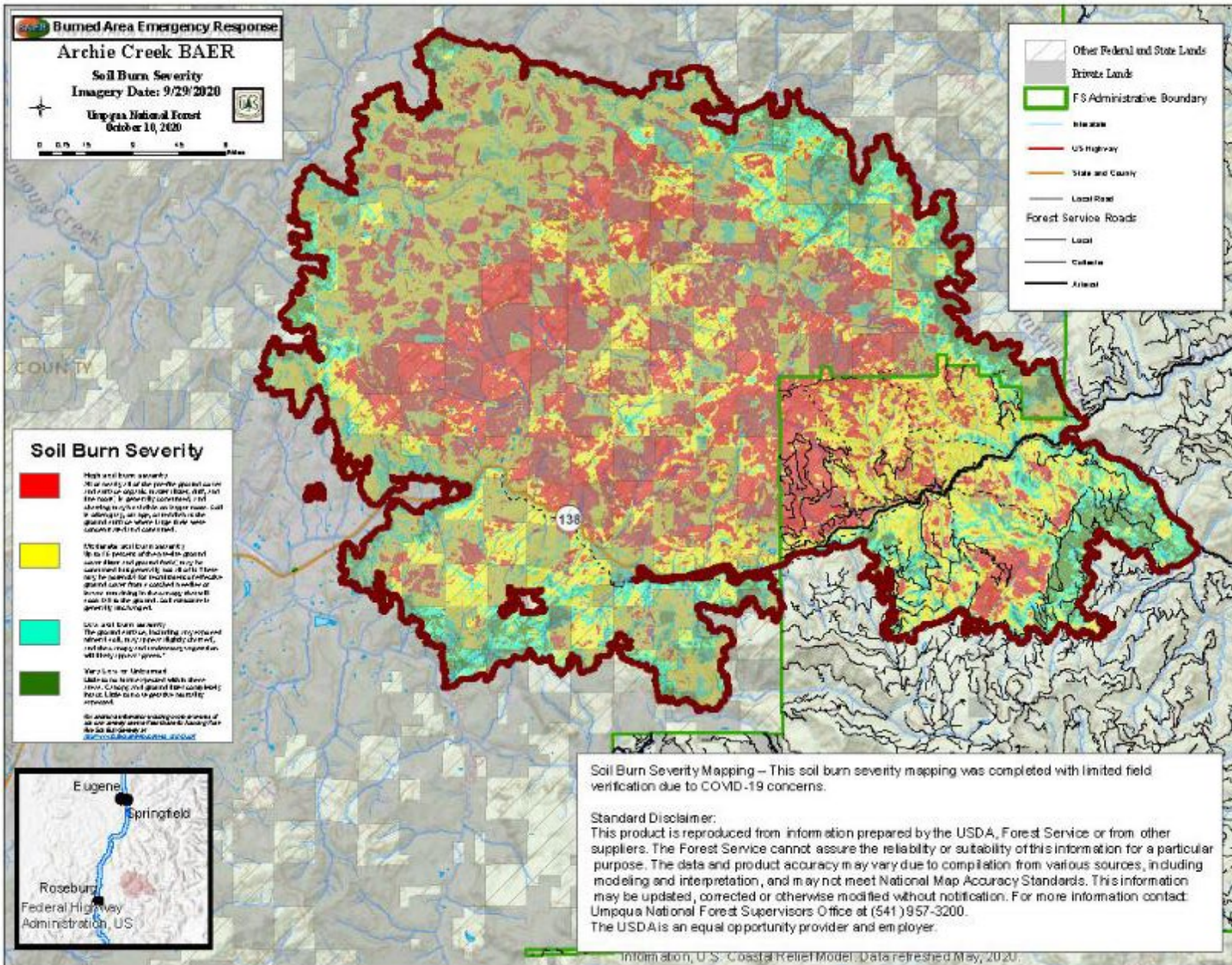
Willamette National Forest  
173,000 acres

NFS	23%
BLM	12%
State	0%
Private	65%

Unburned	3%
Low	34%
Moderate	54%
High	8%







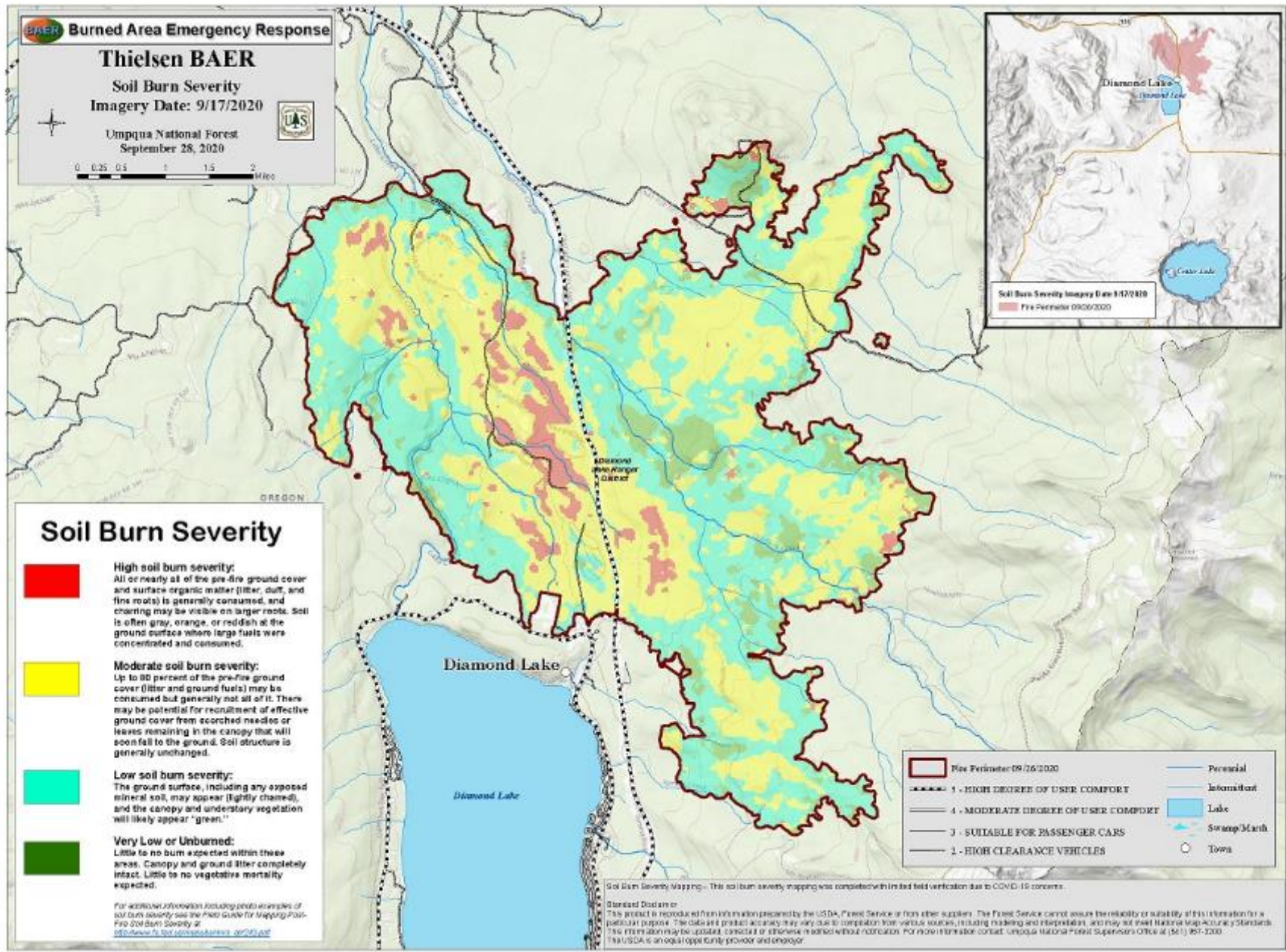
# Archie Creek

## Umpqua National Forest

132,000 acres

NFS	20%
BLM	31%
State	<1%
Private	49%
Unburned	9%
Low	14%
Moderate	44%
High	33%





# Thielsens

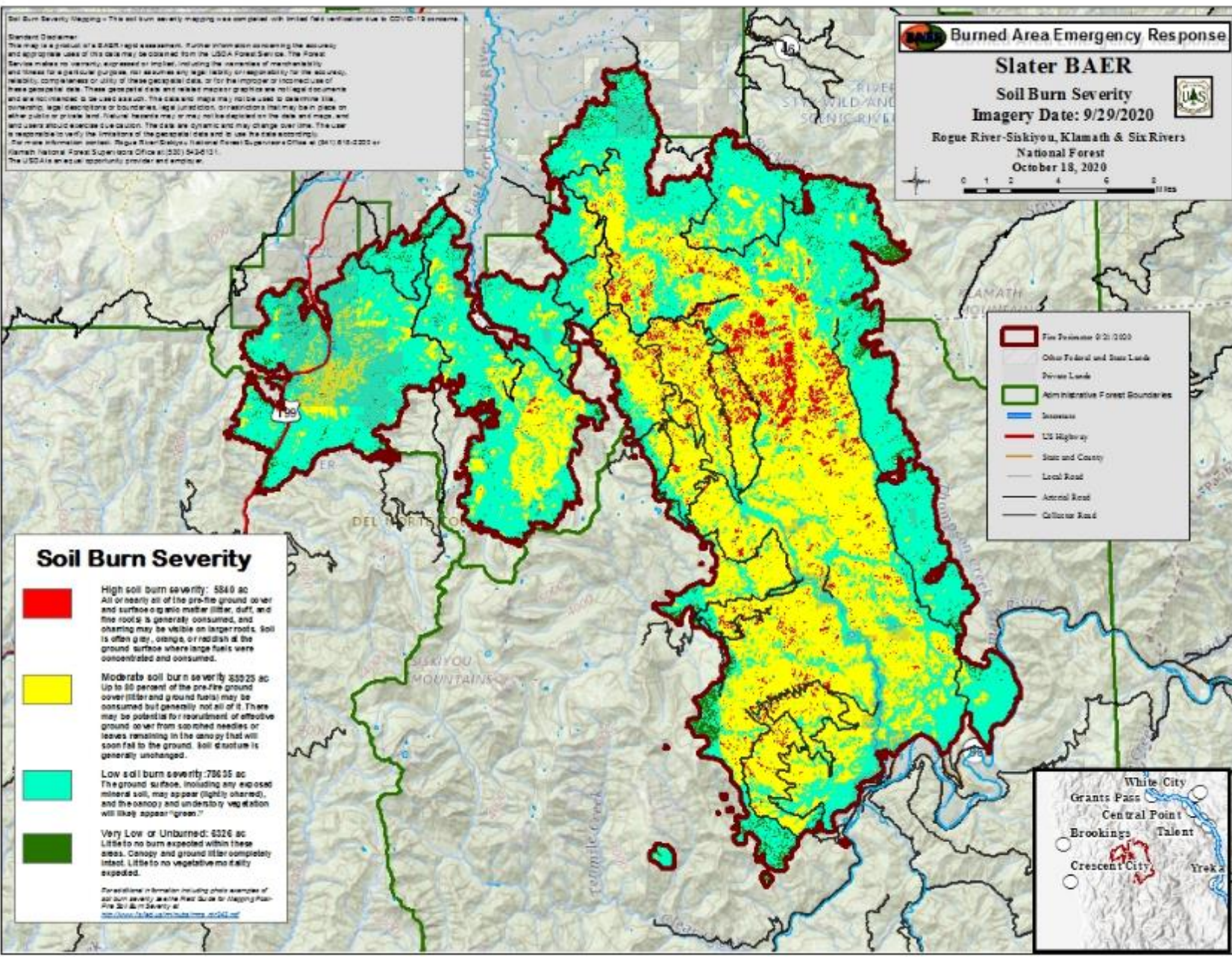
Umpqua National Forest  
10,000 acres

NFS	100%
BLM	0%
State	0%
Private	0%
Unburned	9%
Low	42%
Moderate	43%
High	5%

**Soil Burn Severity Mapping** - This soil burn severity mapping was completed with limited field verification due to COVID-19 concerns.

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# Slater

Rogue River Siskiyou  
National Forest  
71,000 acres

NFS	83%
BLM	4%
State	0%
Private	13%
Unburned	4%
Low	67%
Moderate	27%
High	2%