



# Burned Area Emergency Response



## CAPLES FIRE BAER ASSESSMENT



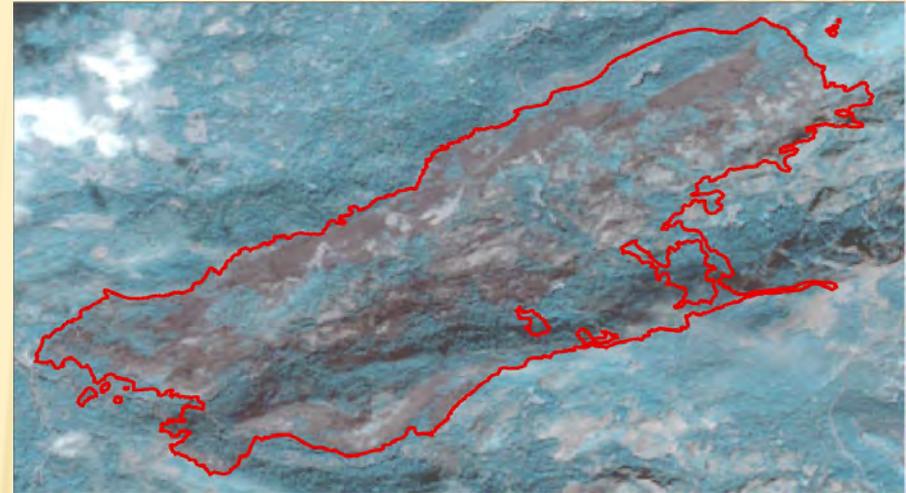
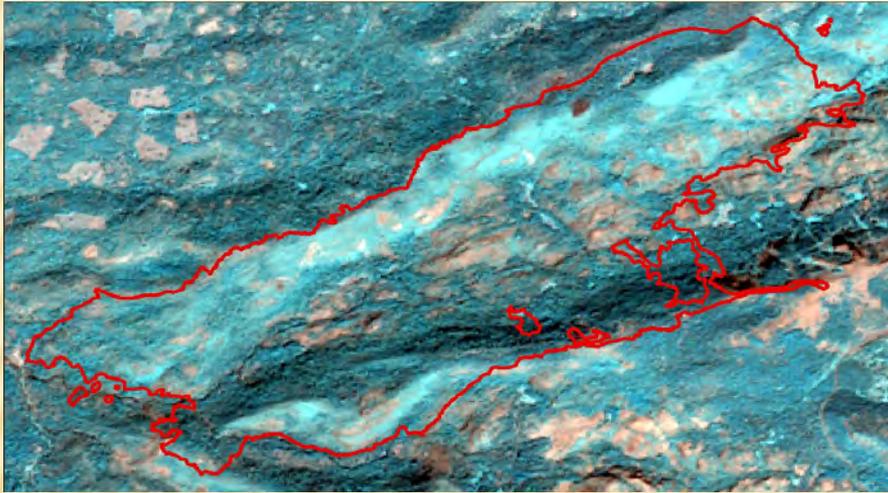
# BAER PROCESS

- BARC Map
- Soil Burn Severity Map
- Establish Watershed Response
- Determine Threats to VAR's
  - Human Life and Safety
  - Property
  - Natural Resources
  - Cultural Resources
- Propose Treatments



- Develop BAER Report
  - 7 Days After Containment
- Implementation

# BURNED AREA REFLECTANCE CLASSIFICATION



- BARC is the comparison between pre and post fire satellite imagery
- Processed by the Forest Service Geospatial Technology and Application Center
- BAER field verifies the BARC and makes adjustments for the final Soil Burn Severity Map (SBS)
- SOIL BURN SEVERITY IS NOT VEGETATION MORTALITY (but we have initial mortality data)

# BURNED AREA REFLECTANCE CLASSIFICATION

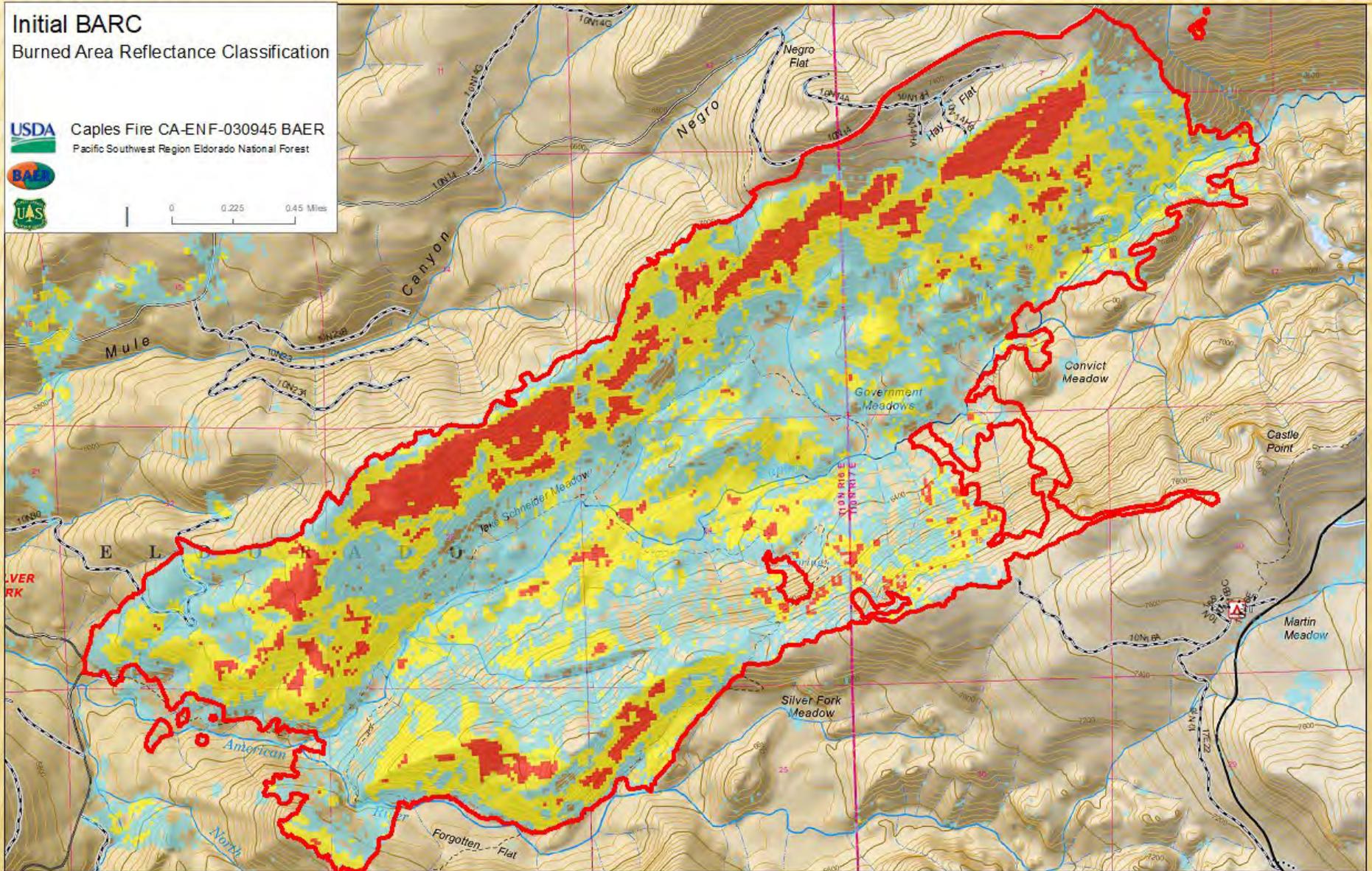
## Initial BARC

Burned Area Reflectance Classification

USDA Caples Fire CA-ENF-030945 BAER  
Pacific Southwest Region Eldorado National Forest



0 0.225 0.45 Miles



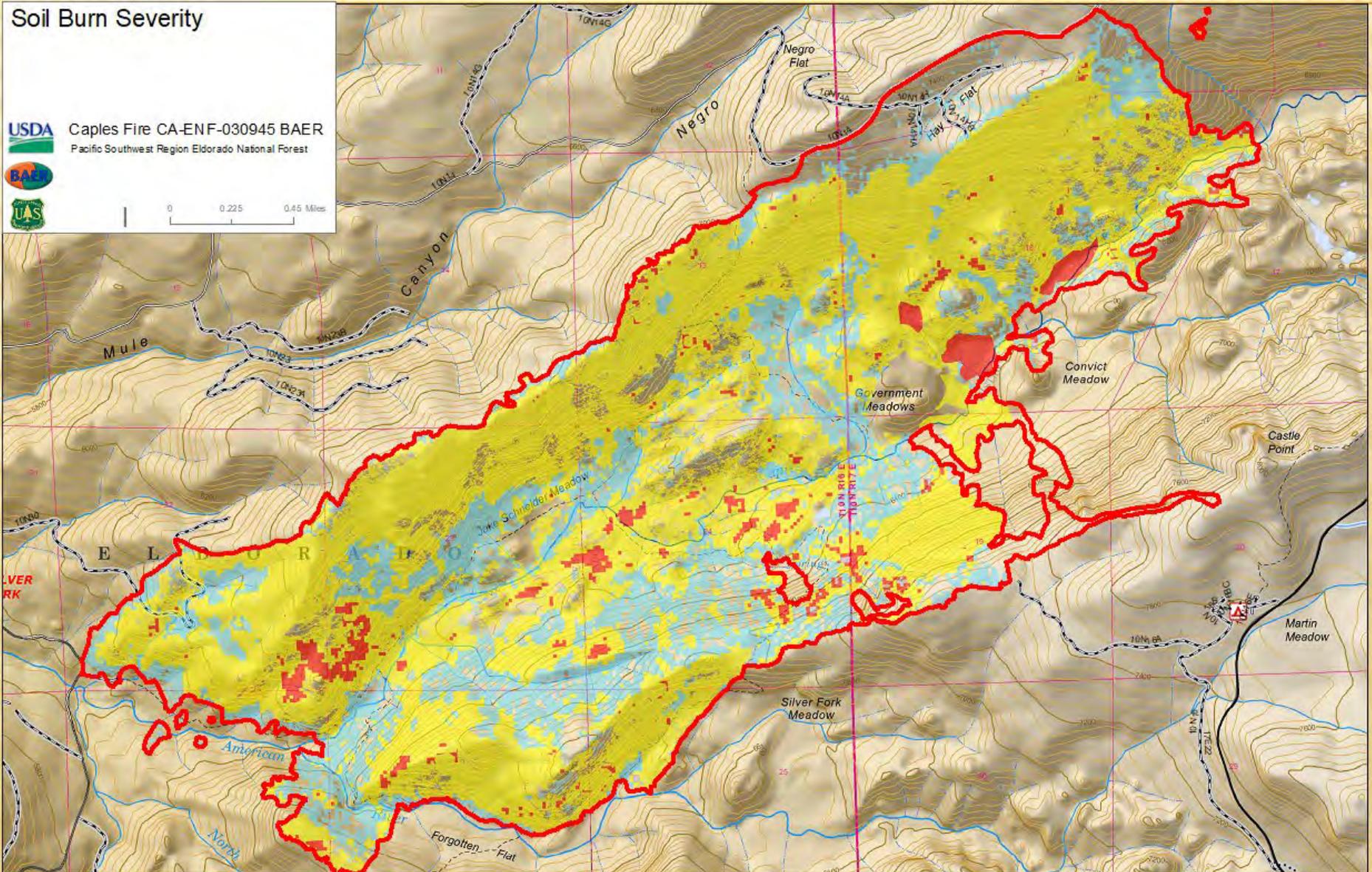
# SOIL BURN SEVERITY

## Soil Burn Severity

USDA Caples Fire CA-ENF-030945 BAER  
Pacific Southwest Region Eldorado National Forest



0 0.225 0.45 Miles



# SOIL BURN SEVERITY DETAILS



Soil Burn Severity	Acres	Percentage
Unburned/Very Low	642	19
Low	760	22
Moderate	1884	55
High	116	3

- ✘ Fire actively burning affecting reflectance and extent
- ✘ Much of moderate severity SBS masked by green canopy introducing uncertainty
- ✘ Shrub canopy removal gives false SBS determination

# WATERSHED EFFECTS – FUEL REDUCTION

Successful fuel reduction in areas with high pre-fire fuel loads. However, unexpected mortality of some legacy trees and continuous tree stands. Areas with high ground heat and absent crown fire will show delayed mortality



# WATERSHED EFFECTS – SEDIMENT

Severe water repellency, thick layers of organic ash, and burned riparian vegetation will result in significant localized deposits of ash and soil.

Amount of sediment delivery highly dependent on fall storm types  
Atmospheric River vs. early heavy snow fall



# WATERSHED EFFECTS – WATER QUALITY

Negative effects to Caples Creek wild trout fisheries is likely. The severity is dependent on type and timing of fall and winter storms.

Ash deposits into the creek are currently evident without rain. The effects to aquatic organisms are still being assessed but no treatments are likely.

Burned bank stabilizing riparian vegetation on some reaches of Caples Creek.



# WATERSHED EFFECTS – COARSE WOOD

Large organic debris jams are common within both Caples Creek and Silver Fork American Creek. Heavy tree fall resulting from the fire will likely exacerbate these jams. In at least one instance, the jam is smoldering.

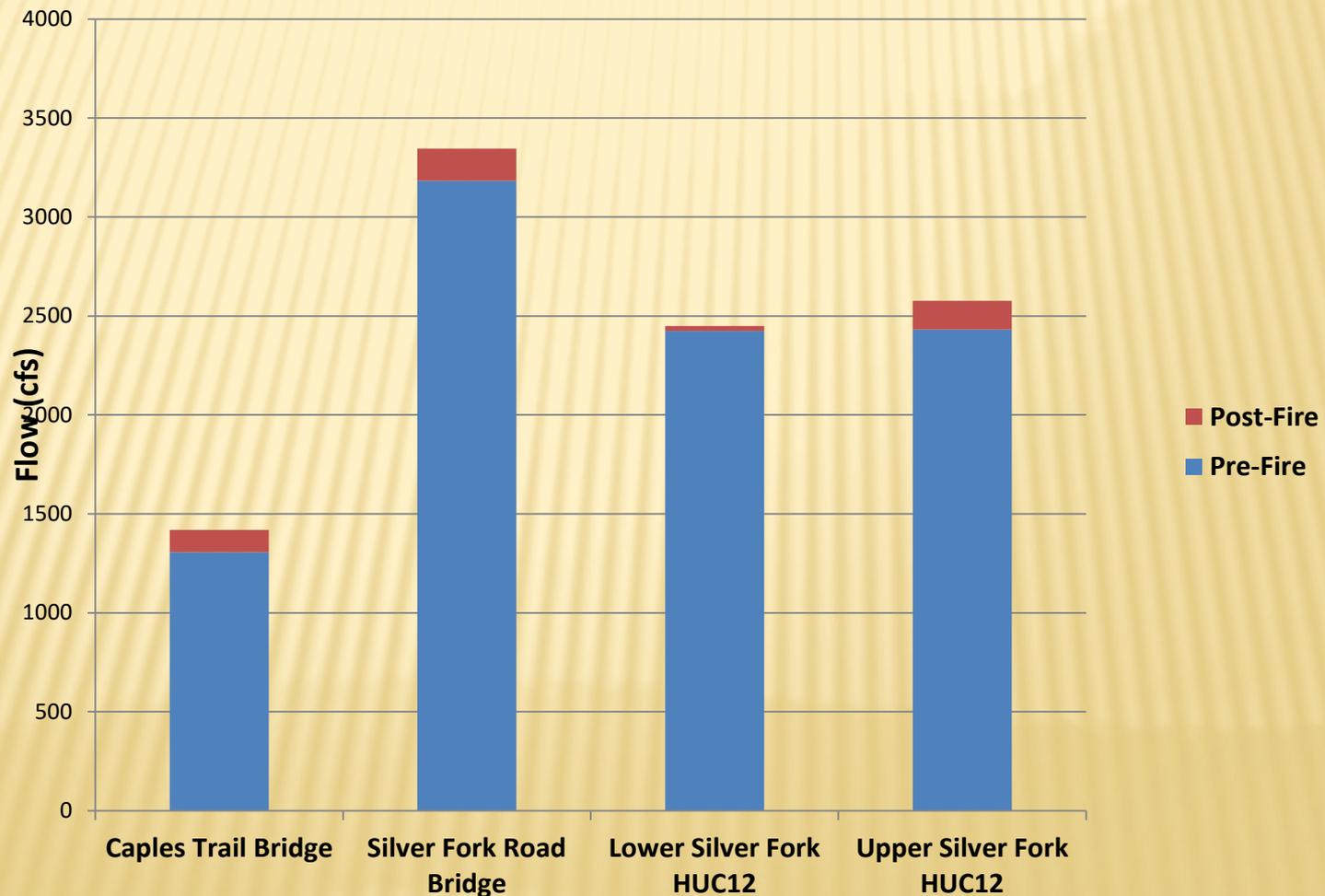
A liberated moving organic debris dam (MODD) could have a cascading effect impacting the Caples foot bridge, the Silver Fork bridge, and EID facilities.



# WATERSHED CONDITION

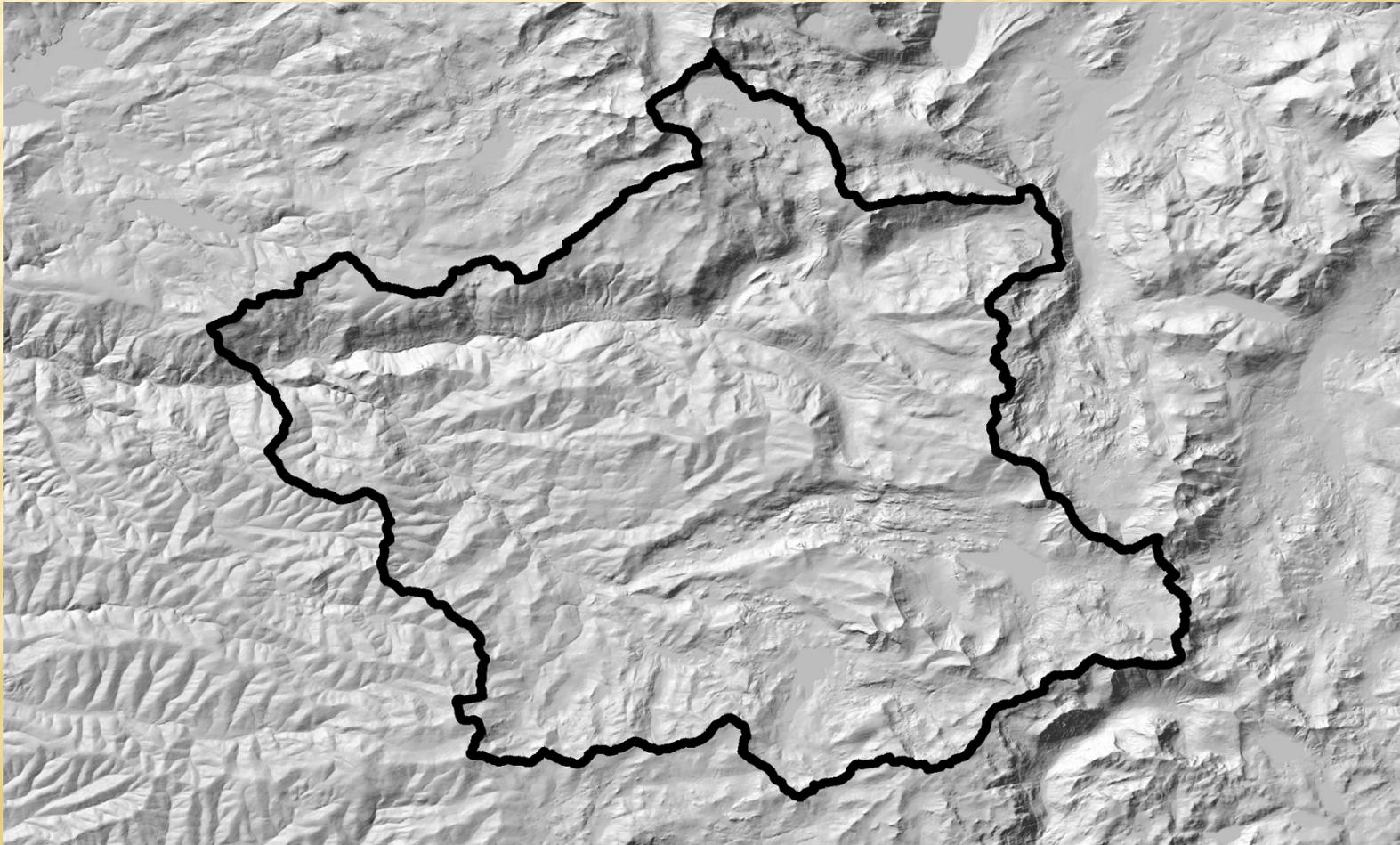
✘ Increased watershed response

+ Q5 flows increase by 1-8%



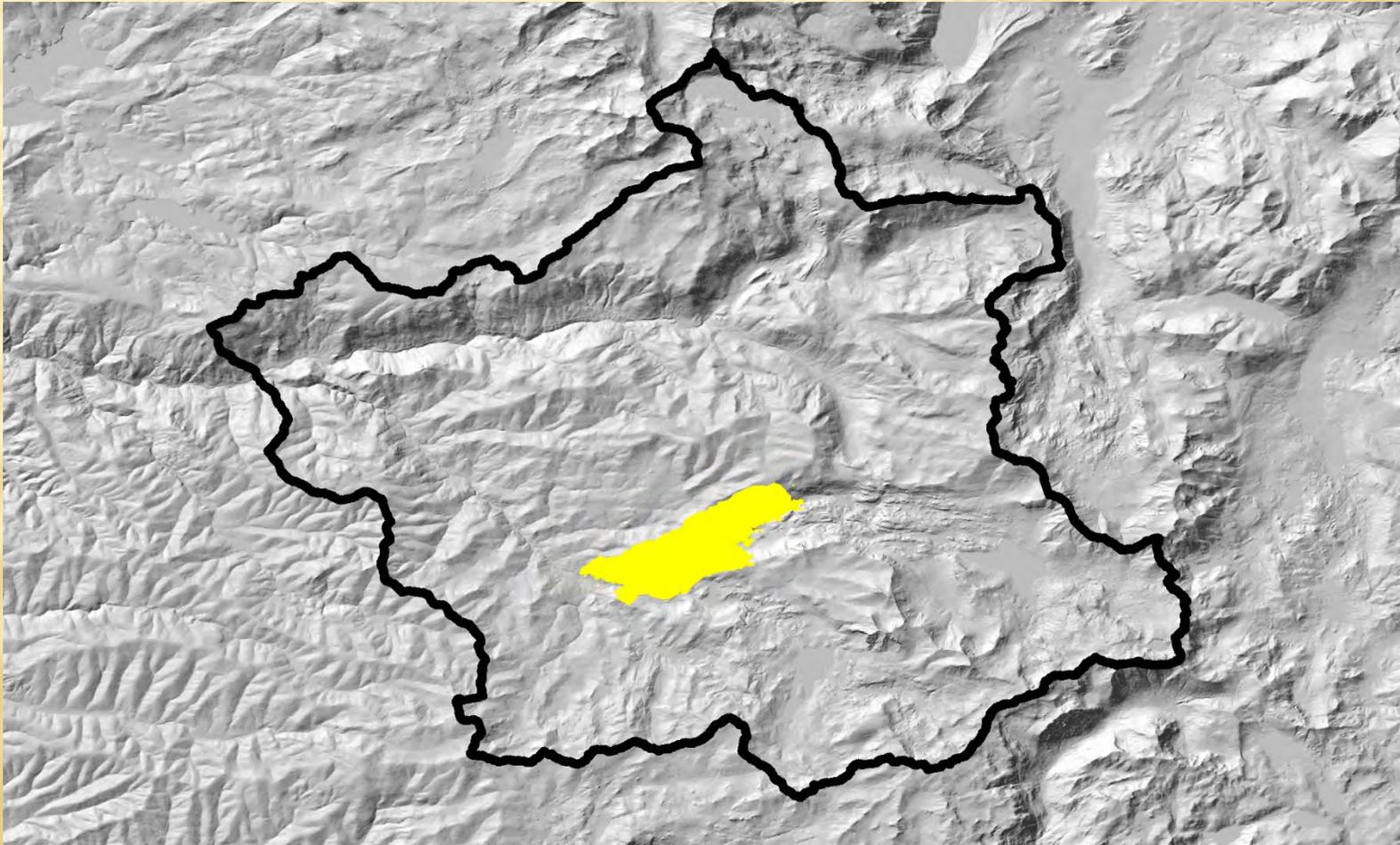
# WATERSHED CONDITION – RELATIVE BURN AREA

South Fork American River below Confluence = 121,256 acres



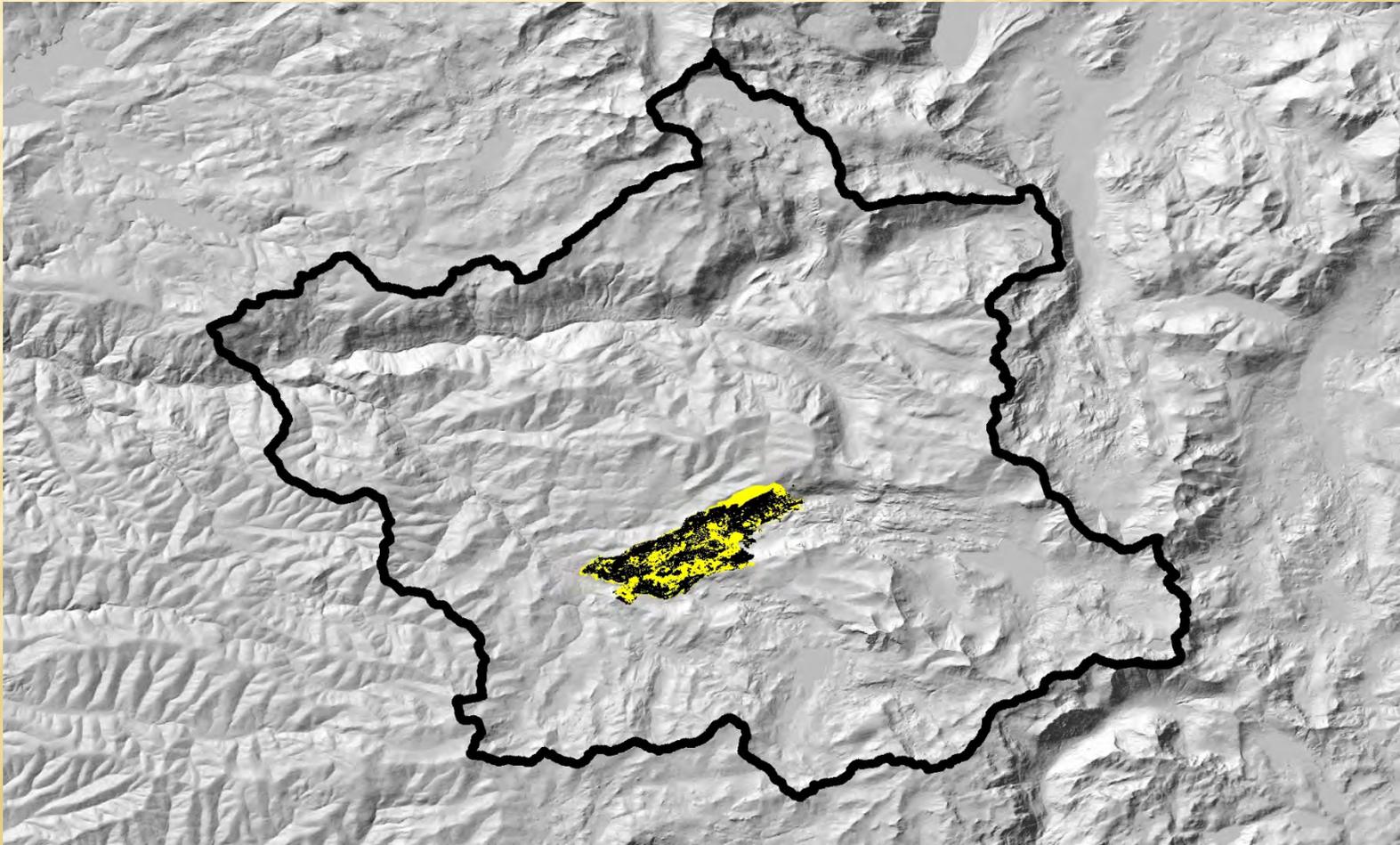
# WATERSHED CONDITION – RELATIVE BURN AREA

South Fork American River below Confluence = 121,256 acres  
Caples Fire Perimeter = 3370 acres



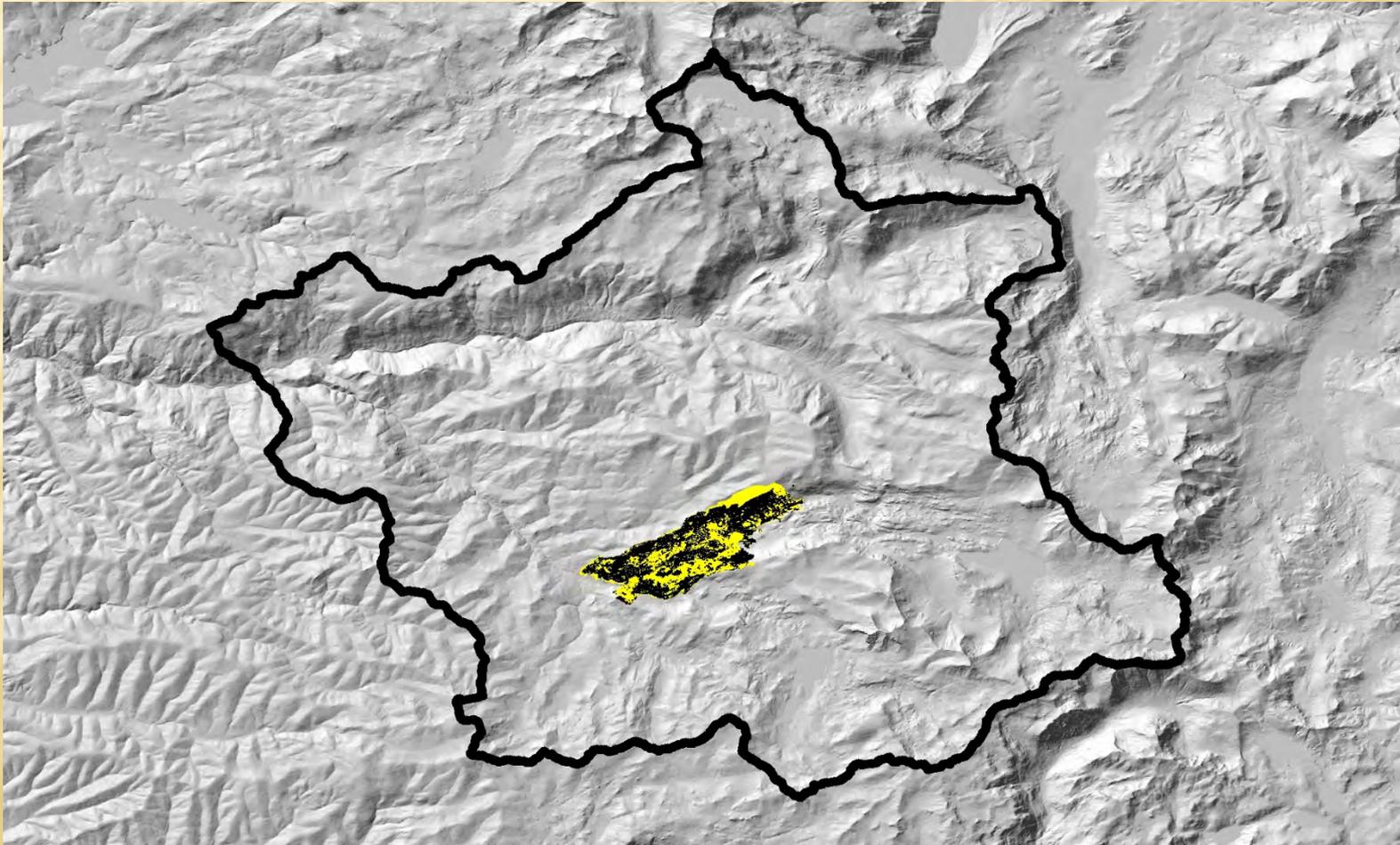
# WATERSHED CONDITION – RELATIVE BURN AREA

South Fork American River below Confluence = 20217 acres  
Caples Fire Perimeter in Caples watershed = 3370 acres  
Moderate and High Soil Burn Severity = 2000 acres



# WATERSHED CONDITION – RELATIVE BURN AREA

South Fork American River below Confluence	= 121,256 acres	<b>1.6% of area above</b>
Caples Fire Perimeter	= 3370 acres	<b>Confluence burned</b>
Moderate and High Soil Burn Severity	= 2000 acres	<b>Moderate or High</b>



# WATERSHED CONDITION FRAMEWORK

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- ✘ Changing Condition Class (WCATT database)
  - + Affected indicators: water quality, riparian vegetation, aquatic habitat, soil erosion, channel shape and function, trail condition
  - + Caples Creek: Functioning At-Risk → Impaired Function (possible)
  - + Silver Fork: Functioning At-Risk → Impaired Function (possible)

# VALUES-AT-RISK

Life/Public Safety  
Property  
Cultural Resources  
Natural Resources



*Located within or downstream of the fire that may be subject to damage from flooding, ash, mud and debris deposition, debris flows, hill slope erosion, hazard trees, and invasive species.*

# RESOURCES EVALUATED WITH LITTLE RISK

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- + Geology – Debris flows are minimal
- + T& E species – T&E species were evaluated. No occupied habitat was identified
- + Soil Productivity – Effects to soil productivity will be minimal although erosion and transport will affect water quality
- + Cultural Resources – Known sites were surveyed and determined not at risk from post fire effects
- + No hazardous material were identified within or downstream of the fire.
- + Caples Trailhead Campground. No risk of flooding and hazard trees were dispatched by ground crews.

# VALUES-AT-RISK – BRIDGES/ROADS

**Risk** - We evaluated the Silver Fork bridge and the Caples Trail Footbridge.

**Effects** – Both bridges are at risk of moving organic debris dams. The Caples Trail Footbridge is at particular risk of large woody material damaging the deck and supports

**Treatments** – Storm patrol, 10 person handcrew, and excavator to remove material

Type 2 excavator for 4 days

10 person handcrew for 2 days

GS-11 Watershed specialists for 5 days



# VALUES-AT-RISK – TRAIL STABILIZATION

*Risk* – Two trails are at risk of erosion.

*Effects* – Approximately 1000 feet of trail in moderate and high soil burn severity with inadequate water controls. Trail damage and sedimentation is likely.



*Treatments* – Construct water dips with hand tools. The soil scientist and hydrologist will do the work concurrent with other monitoring work

2 GS-11 Watershed specialists for 1 day.

# VALUES-AT-RISK – NOXIOUS WEEDS

*Risk* – Spread of noxious weeds.

*Effects* – Potential infestations of noxious weeds in a proposed wilderness area without current infestations, and control of know populations



*Treatments* – GS 5,7,9 botany personnel + equipment and supplies for survey and treatments (EDRR). Funding can only be used for one year with a minimum of two surveys

# VALUES-AT-RISK – HUMAN LIFE AND SAFETY

*Risk* – Potential injury/death from rock and snag fall in a high use recreational area

*Effects* – Trails are currently experiencing rock fall from destabilized slopes. Fire-killed and damaged trees are breaking and falling at significant rates and puts recreational users at risk. Legacy trees will likely burn into next spring creating more snag supply

*Treatments* – Recommendation to staff to evaluate snag danger after snow melt to determine opening date.

Signage - 6 signs



# IMPLEMENTATION AND COORDINATION

## *Administration of BAER treatments and interagency coordination*

- *Administer and track implementation and costs*
- *Coordinate with outside users and agencies*
- *Coordinate changes to a priority watershed in WCATT*

GS-11 Watershed Specialist for 10 days

**QUESTIONS?**

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