

# Waldo Canyon Fire

Pike & San Isabel National Forests,  
Cimarron & Comanche National Grasslands



Burned Area Emergency Response



# Waldo Canyon Fire

## BAER Team Members

- Regional Coordinator – Tommy John (R2)
- Forest Liaison – Sarah Mayben (PSICC)
- Team Leader – Marc Stamer (R5-BDF)
- Co-Team Leader – Dana Butler (PSICC)
- Public Information - Cathleen Thompson (R5)
- Public Information – Courtney Wood (R5-PNF)
- Interagency Liaison – Steve Sanchez (PSICC)
- Administrative Assistant – Colleen Oquist (PSICC)
- Hydrologist – Mary Moore (R5-LTBMU)
- Hydrologist – Dave Park (PSICC)
- Soil Scientist – Dave Young (R5-Shasta-Trinity)
- Soil Scientist – Brad Rust (R5-Shasta-Trinity)



# Waldo Canyon Fire

## BAER Team Members

- GIS – Molly Purnell (PSICC)
- GIS – Ed Biery (PSICC)
- Engineering – Judy Kittson (ARP)
- Engineering(t) – Cait Cuddihy (PSICC)
- Wildlife/Noxious Weeds – Felix Quesada (PSICC)
- Wildlife/Noxious Weeds – Denny Bohon (PSICC)
- Botany – Steve Olson (PSICC)
- Archaeology – Priscilla Riefkohl (PSICC)
- Archaeology – Clint Dalton (PSICC)
- Forester – Adam LaSalle (PSICC)
- Forester – Sam Schroeder (PSICC)
- Recreation – Frank Landis (PSICC)
- Land and Special Uses – Jeff Hovermale (PSICC)
- State Forester – Jonas Feinstein (NRCS)
- District Conservationist – Greg Langer (NRCS)



# Waldo Canyon Fire

## Interagency Coordination

- Natural Resource Conservation Service
- United States Geologic Survey
- Federal Emergency Management Agency
- Army Corps of Engineers
- National Oceanic Atmospheric Administration
- Colorado Geologic Survey
- City of Colorado Springs
- El Paso County
- Colorado Springs Utilities
- Colorado Department of Transportation
- Air Force Academy
- State OEM
- Local EMS



# Waldo Canyon Fire

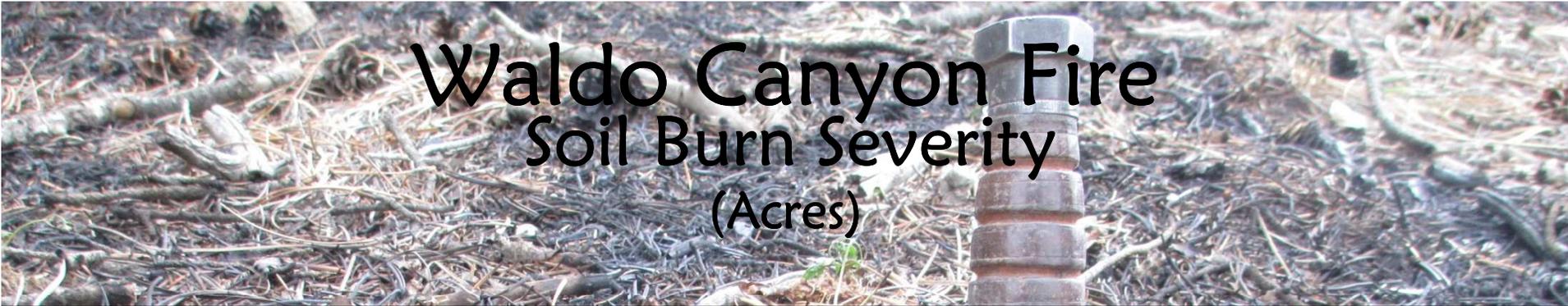
- Fire Started: Saturday, June 23, 2012
- Fire Contained: Tuesday, July 10, 2012
- Total Acres: 18,247

## Ownership

National Forest – 14,422 acres  
Department of Defense – 147 acres  
Private – 3,678 acres

*Getty Images - Justin Sullivan*





# Waldo Canyon Fire Soil Burn Severity (Acres)

Low – 7,586 (41%)



# Waldo Canyon Fire

## Soil Burn Severity

(Acres)

**Moderate – 7,286 (40%)**





Waldo Canyon Fire  
Soil Burn Severity  
(Acres)

**High – 3,375 (19%)**



# Soil Burn Severity

based on hand-mapped rapid assessment

6th Field Watersheds	% Low	% Mod	% High	% M+H
Headwaters Fountain Creek	39%	46%	15%	61%
Cascade Creek-Fountain Creek	37%	42%	22%	63%
Garden of the Gods	24%	58%	17%	76%
West Monument Creek	67%	12%	20%	33%
Lower Monument Creek	43%	36%	19%	55%
Total	41%	40%	19%	58%



# Soil Burn Severity based on hand-mapped rapid assessment

Top-5 Sub-Watersheds	% Low	% Mod	% High	%M+H
wsM - Unnamed (Alpine)	0%	75%	25%	100%
wsE - Cascade	11%	32%	57%	89%
wsT - Northfield Res. gulch	16%	10%	74%	84%
wsG - Unnamed (Hwy 24 Frontage)	17%	82%	0%	83%
wsY - Camp Creek above Eagle Camp 1	19%	58%	23%	81%



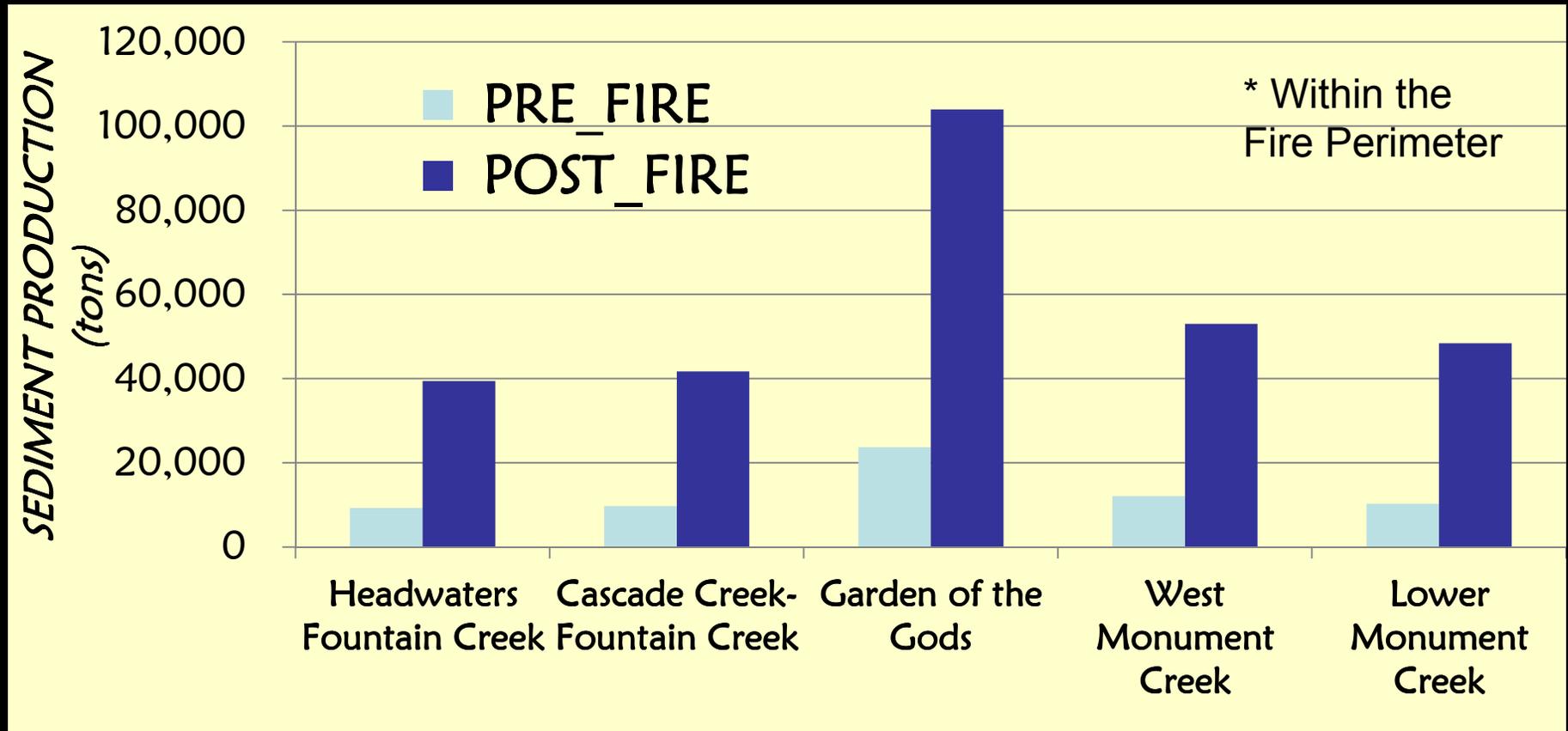
# Geologic Response

- Landslides
- Debris Flows
- Rockfall



# Watershed Response

## Sediment Response



Big Picture: Erosion Potential modeled with WEPP-ERMiT  
(10 year event)

**Fire Effect: + 326-374% or > 4-fold  
increase in sediment**



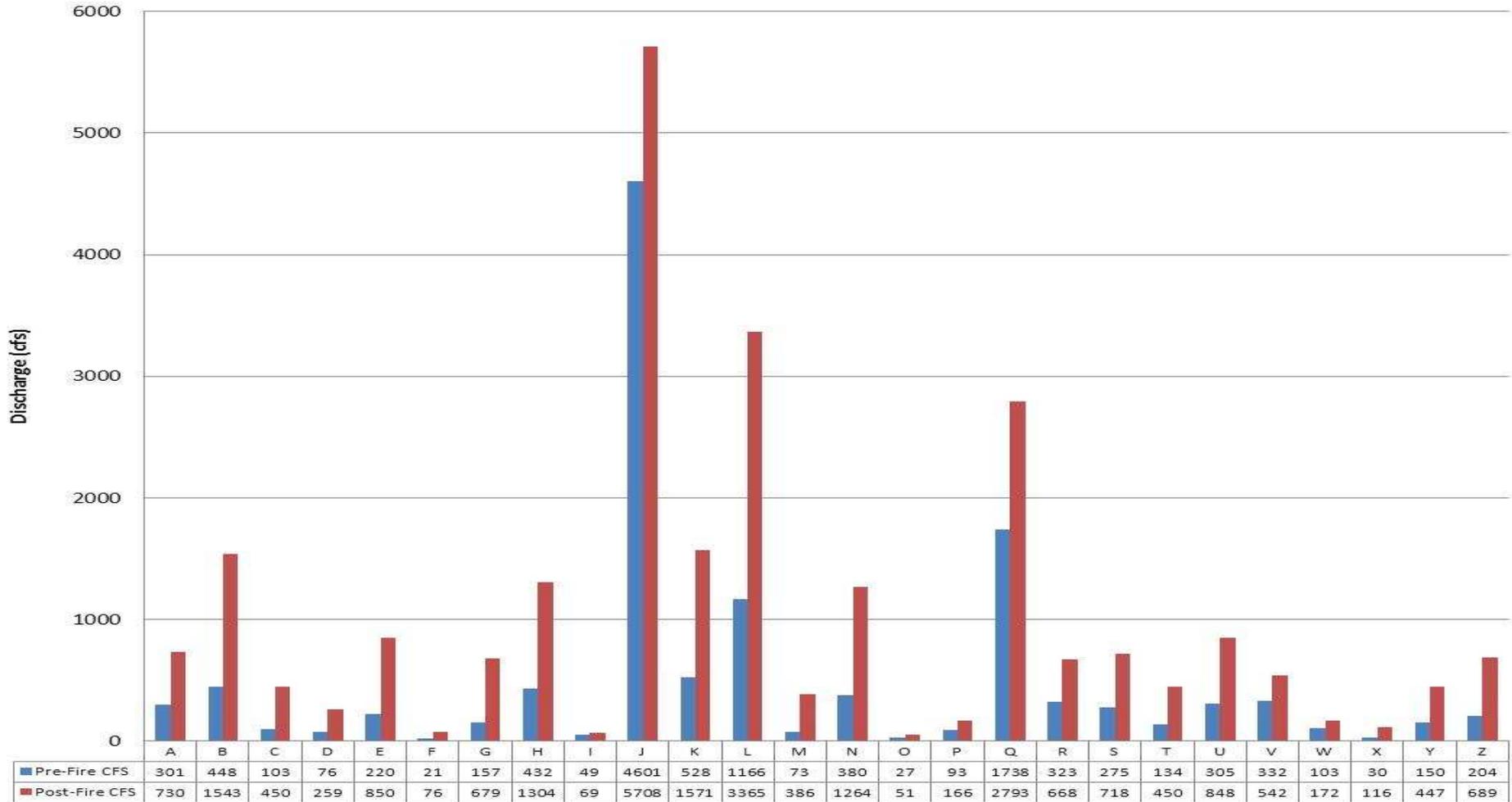
# Watershed Response - Hydrology



# Watershed Response

## Discharge Response

Pre and Post Fire Discharges for Pour Points and Sub-basins  
(10 yr 1hr Storm)



# Values at Risk

## General Threats:

- Flooding
- Increased Sediment
- Debris Flows
- Land Slides
- Hazard Trees
- Rock Fall



# Values at Risk

## Life

- People entering burned watersheds.
- Travelers and residents along Highway 24 below burn area.
- Occupants of CSU's watershed operators residence.
- Aspen Grove Interpretive Site.
- Residential areas within or adjacent to the flood plain of burn watersheds in the following areas:
  - Green Mountain Falls -  
Chipita Park
  - Cascade
  - Colorado Springs
  - Manitou Springs
  - Cedar Heights
  - Mountain Shadows
  - Peregrine



# Values at Risk

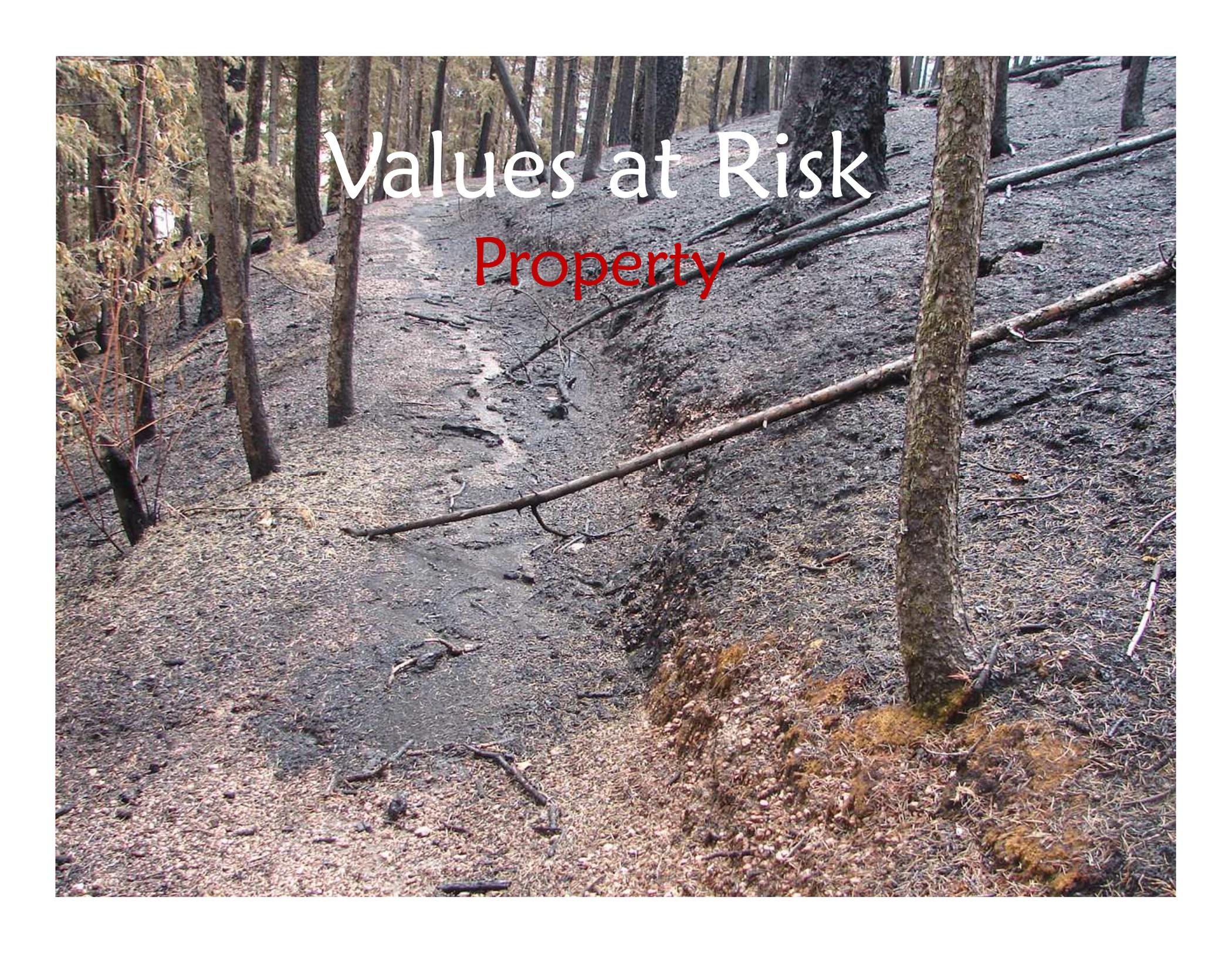
## Property

- Forest Roads and associated infrastructure - 300(Rampart Rd), 302, 303, 303A, 306, 306A,306B,306C, 304, and non-system roads associated with 305
- Forest Trails – Waldo Canyon Trail, Trails 700, 700A, and 700B
- Developed Sites – Thunder Ridge and Meadow Ridge Campground, Promotory Picnic Area
- CSU raw water collection, storage and conveyance systems, water treatment facilities, power lines, and associated infrastructure



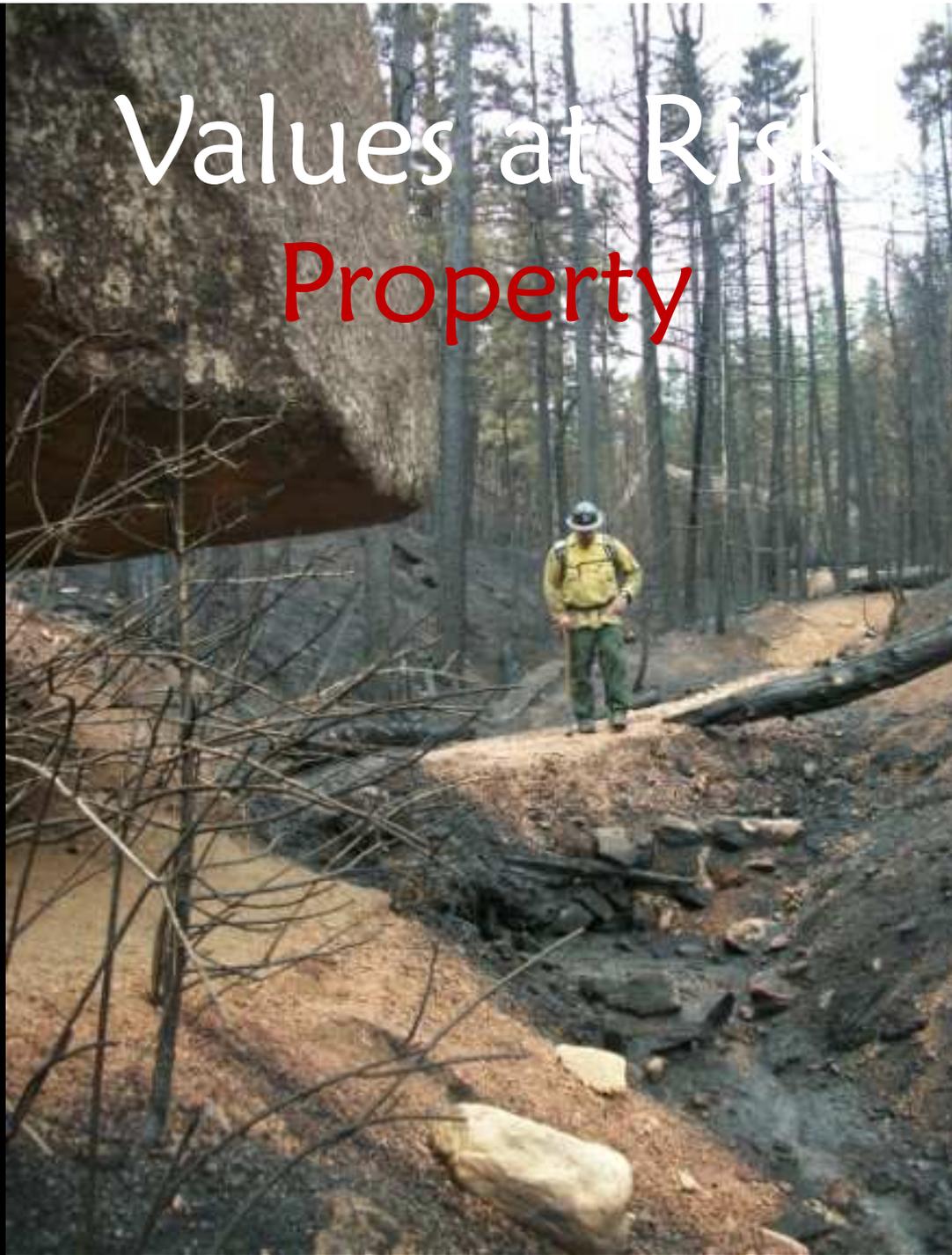
# Values at Risk Property



A photograph of a forest floor covered in dark volcanic ash and fallen logs, with a steep embankment on the right side. The ground is uneven and covered with a layer of dark ash, with some fallen logs and branches scattered across it. The trees are thin and appear to be in a state of recovery or are young. The overall scene suggests a forest affected by a volcanic eruption.

# Values at Risk Property

# Values at Risk Property



# Values at Risk

## Property



- State Highway 24 downstream of burn area
- Centennial Expressway and infrastructure
- Roads and associated infrastructure within and downstream of the burn.
- Residences, businesses, and camps within or adjacent to the flood plain of burn watersheds in the following areas:
  - Green Mountain Falls
  - Chipita Park
  - Cascade
  - Colorado Springs
  - Manitou Springs
  - Cedar Heights
  - Mountain Shadows
  - Peregrine



# Treatments

## Land

- Non-Native Weed Detection Surveys/Treatment
- Helimulch (Coordinate contracting efforts with NRCS and other cooperators)
  - Wood shred (1000 acres)
  - Straw (3,404 acres)

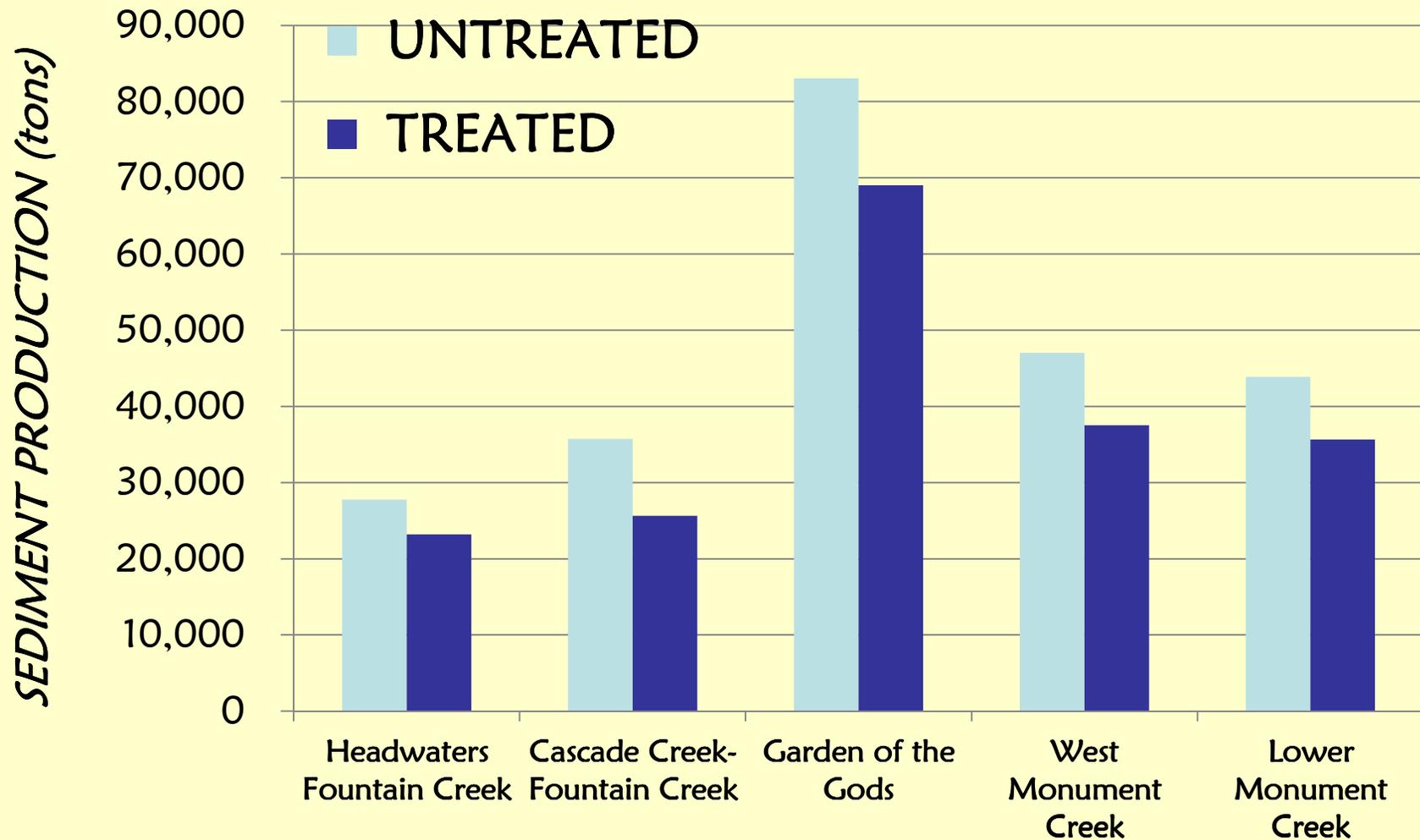
## Road and Trail

- Road Stabilization/Storm Proofing
- Trail Stabilization/Storm Proofing
- Storm Patrol
- Road/Trail Closure



# Watershed Response

## Sediment Response



# Watershed Response

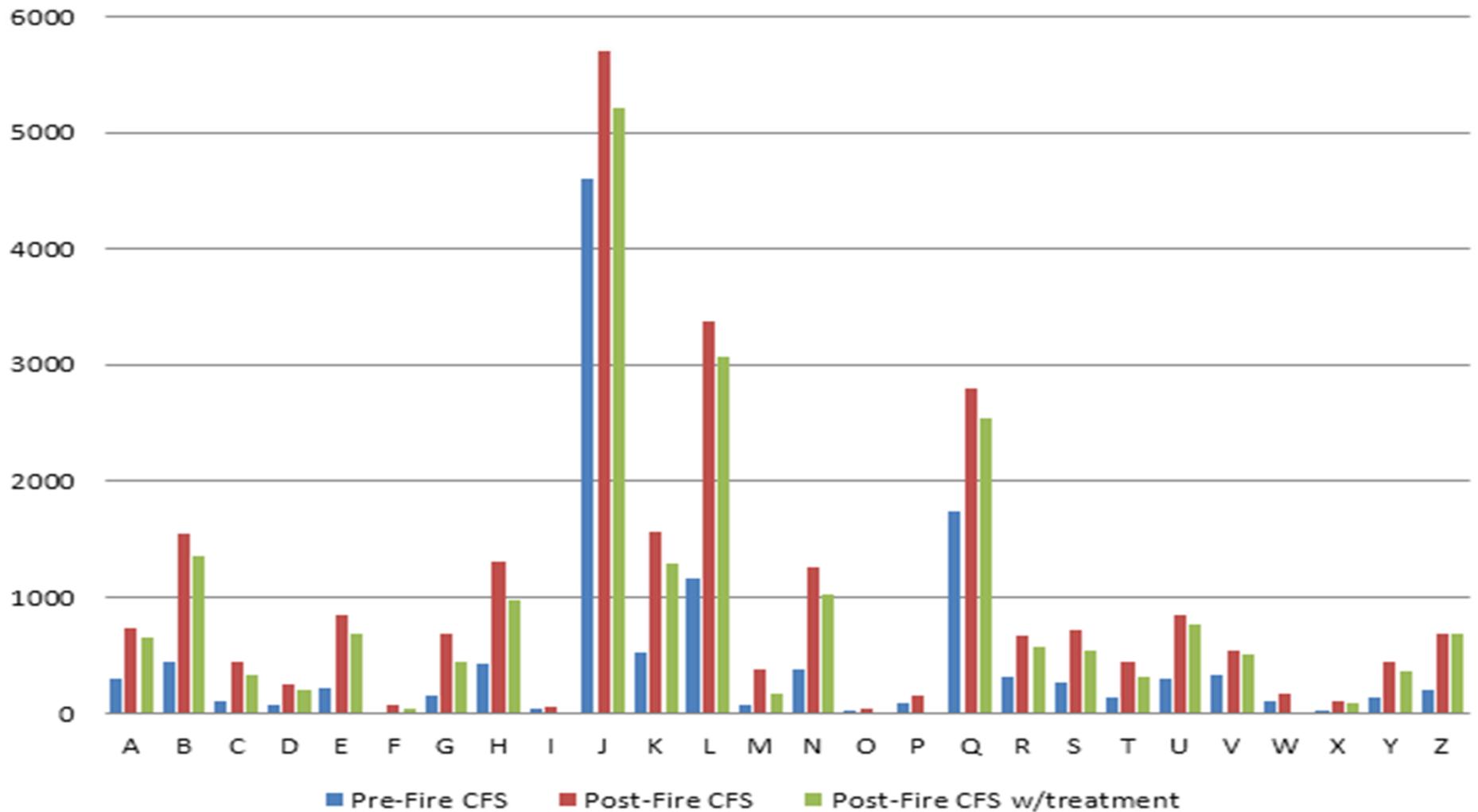
## Sediment Response

Within the  
Fire Perimeter

- Erosion Potential – Treatment Effect modeled with WEPP-ERMiT (10 year event)
- Treatment Effect: 16-28% reduction in sediment production



# Pre-, Post, and Post with Treatment Discharges for Pour Points and Sub-basins (10 yr 1hr Storm)



# Treatments

## Limitations – Debris Flow

- Need debris flow data from USGS to finalize evaluation
- Hillslope treatments can not prevent debris flows (potentially reduce peak discharge)
- Subwatersheds where debris flow process is dominant, implementation team should evaluate need and effectiveness for hillslope treatment.

## Channel

- None
- Debris basins ineffective at mitigating debris flow impacts



# Treatments

## Protection and Safety

- Cultural Resource Protection
- Area Closure
- Implementation Team Safety Mitigation
- Interagency Coordinator



# Recommendations

- Long-term interagency coordination
- Monitoring—T&E species, noxious weeds, road conditions, BMPs
- Hazard tree assessment and treatment
- Coordinate volunteer and partnership efforts
- Reduce OHV intrusions
- Interpretation and education outreach
- Arch Site mitigation
- Landline resurvey
- Long-term Forest Restoration
- Evaluation of non-system trails
- Urban Front Country Initiative  
Special Order



# Questions?



Tommy Stoughton - USFS BDF

