



United States Department of Agriculture

Mendocino complex / Ranch Fire 2018

Blue Ribbon Commission Meeting
December 20, 2018
Upper Lake, CA

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District Ranger, Covelo and Upper
Lake Ranger Districts
Mendocino National Forest



Forest Service

December 2018

Ranch Fire Overview



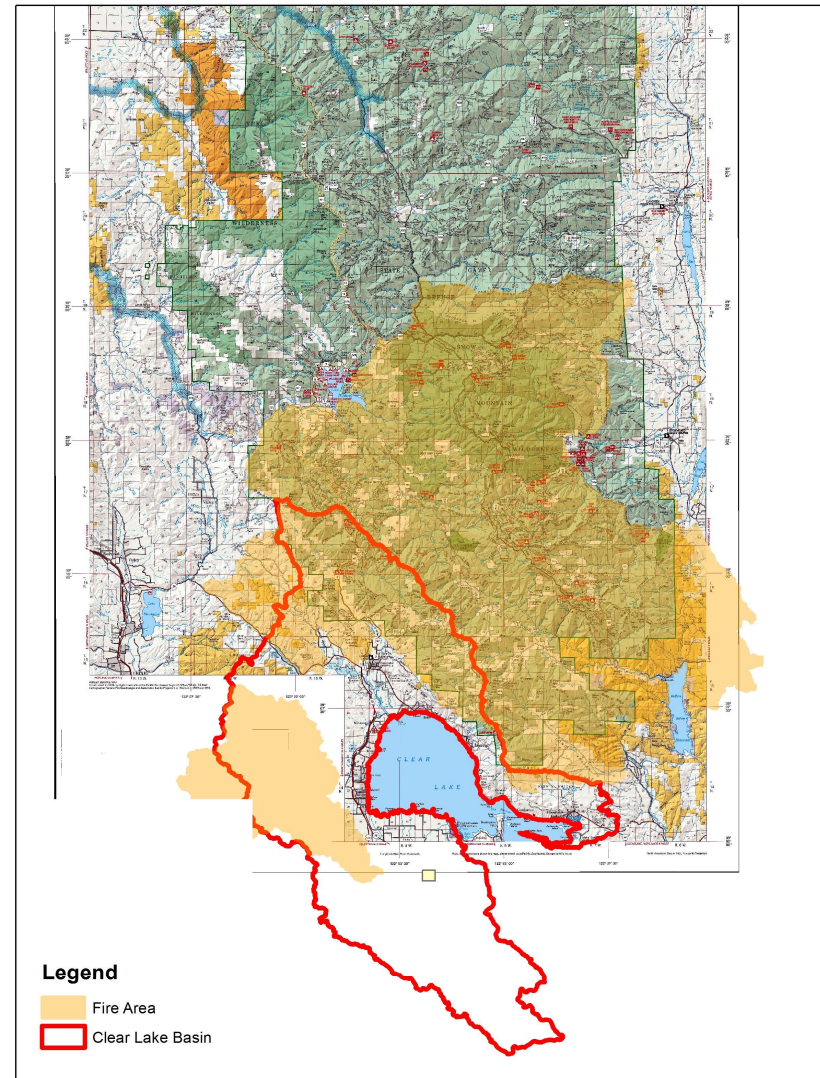
- Start: July 27, 2018
- Unified Command on July 30
- Cause: Under Investigation
- Containment: 9/1/18
- Burned Acres: 410,203 (9/1)
 - 288,271 Mendocino NF
- Approximately 300 mi line
- Suppression Cost:
 - \$203 MIL (12/11/18)



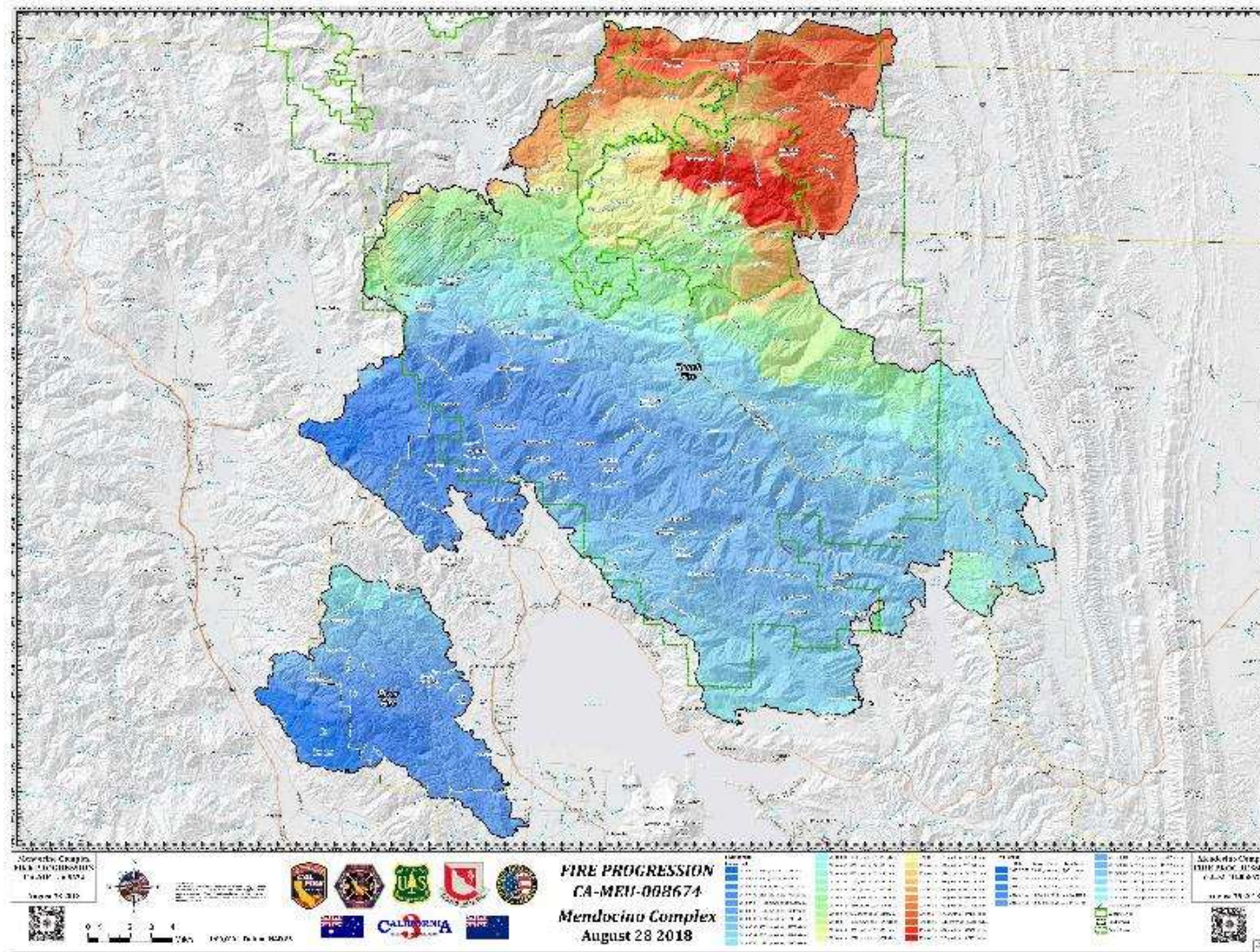
Ranch Fire Overview



Approximately 98,000 acres of the Clear Lake basin within the fire perimeters (~40%)



Ranch Fire Overview - Fire Progression



July 27 – Aug 2

Aug 2 – 12

Aug 12 – 27

Extreme Spread

July 30: 31,864

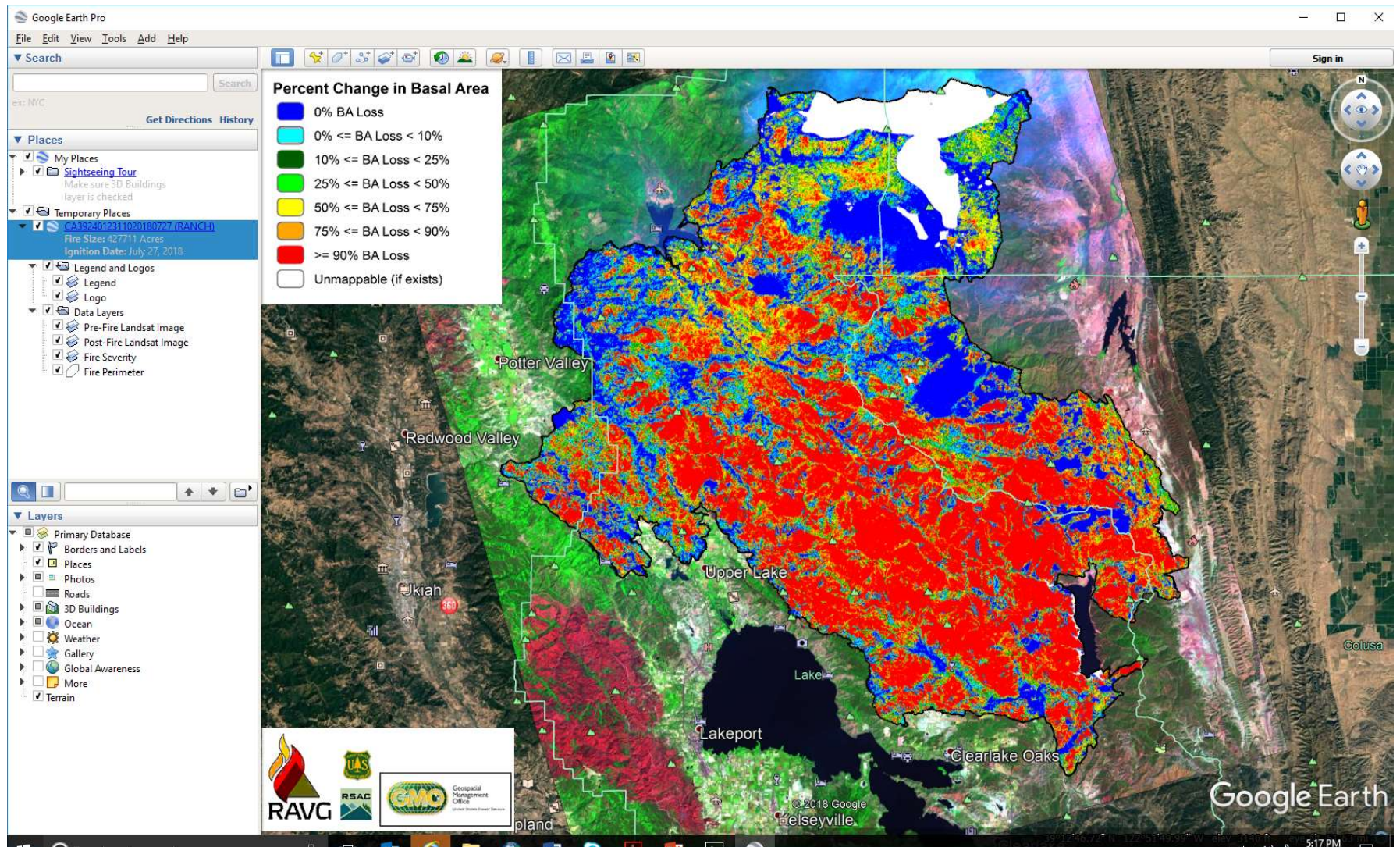
Aug 2: 35,506

Aug 3: 43,532

Aug 4: 68,626



Ranch Fire Overview



Ranch Fire Overview



Looking up East Fork Middle
Creek



Post Fire Practices and Policies

- Suppression repair - required on all fires (complete)
- **Burned Area Emergency Response (BAER) - required on fires over 500 acres (containment to 1-2 years)**
- Hazard tree abatement - situational (0-2 years)
- Long-term restoration - situational (3+ years)
- Fuels Treatment Effects Monitoring (FTEM) - required whenever a treatment (less than 10 years old) is burned in a wildfire



Post Fire Practices and Policies – Suppression Repair

- Dozer line and hand line repair (300 miles)
- Road grading
- Draft site repair
- Seeding
- Garbage removal



Post Fire Practices and Policies – Suppression Repair

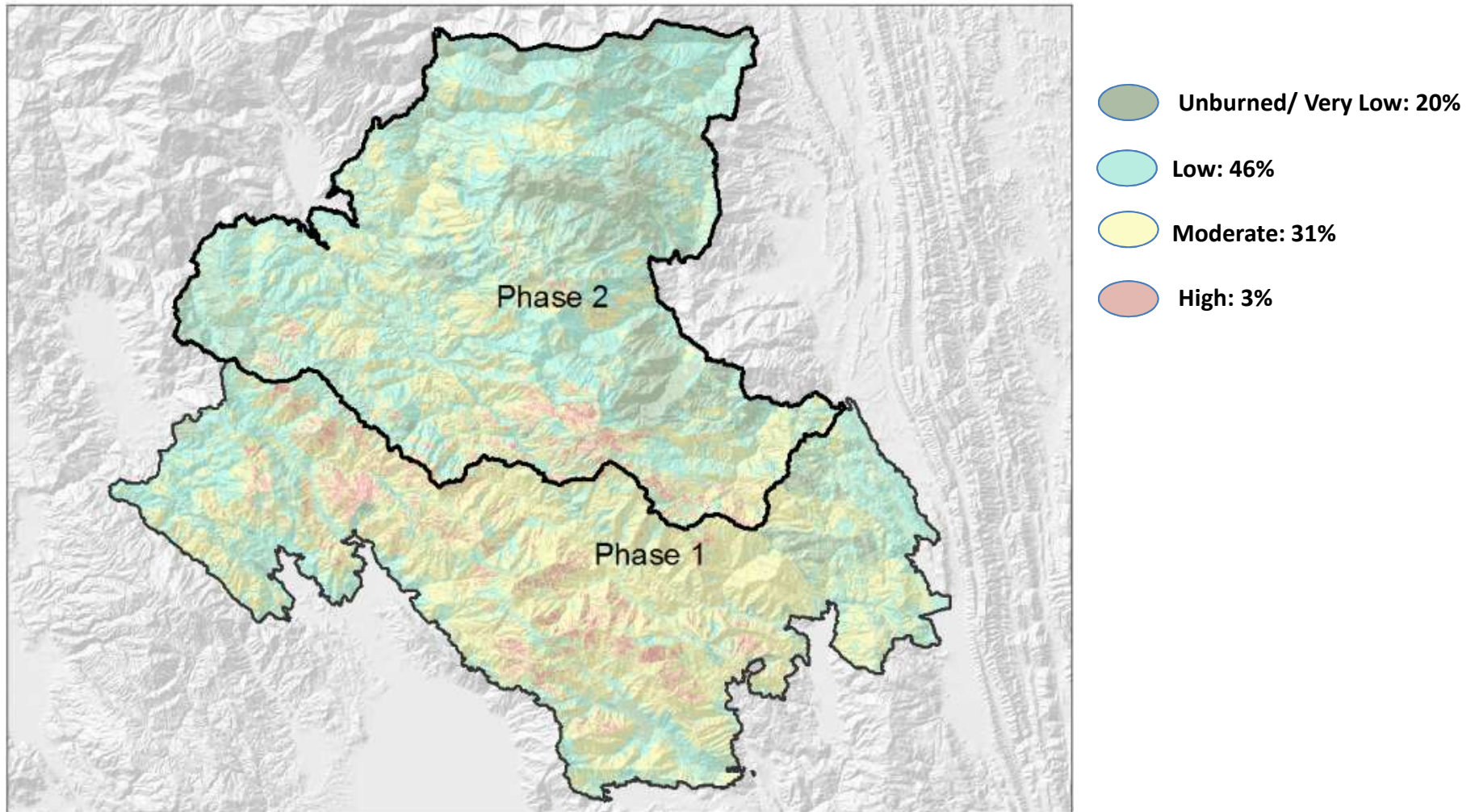


BAER Assessment Process

- **Map soil burn severity**
- **Identify watershed response hazards**
 - flood source areas/hazards
 - erosion source areas/hazards
 - geologic hazards (debris-flow, rockfall)
- **Identify Values at Risk on NFS lands**
 - Life and Safety
 - NFS Property (roads, trails, facilities, etc.)
 - Natural and Cultural Resources
- **Assess Risks**
- **Develop Treatments to manage risk**



Soil Burn Severity (SBS)



Post Fire Practices and Policies - BAER

Low SBS

Shallow surface char
(<1 cm)

OM unaffected

Structure ok

Porosity ok

Fine roots abundant

Seed bank ok

Natural/slight water
repellency

Natural recovery rapid



Post Fire Practices and Policies - BAER



Moderate SBS

$\frac{1}{2}$ inch +/- surface
char

OM unaffected

Structure mostly intact

Porosity mostly intact

Fine roots
charred/present

Seed bank ok

Moderate H₂O repellency

Natural recovery normal



Post Fire Practices and Policies - BAER

High SBS

Surface oxidation

Deep char- 1.5+ inches

Structure very degraded

Porosity very degraded

Fine roots consumed

OM volatilized

May have severe water repellency

Natural recovery slow



Post Fire Practices and Policies - BAER

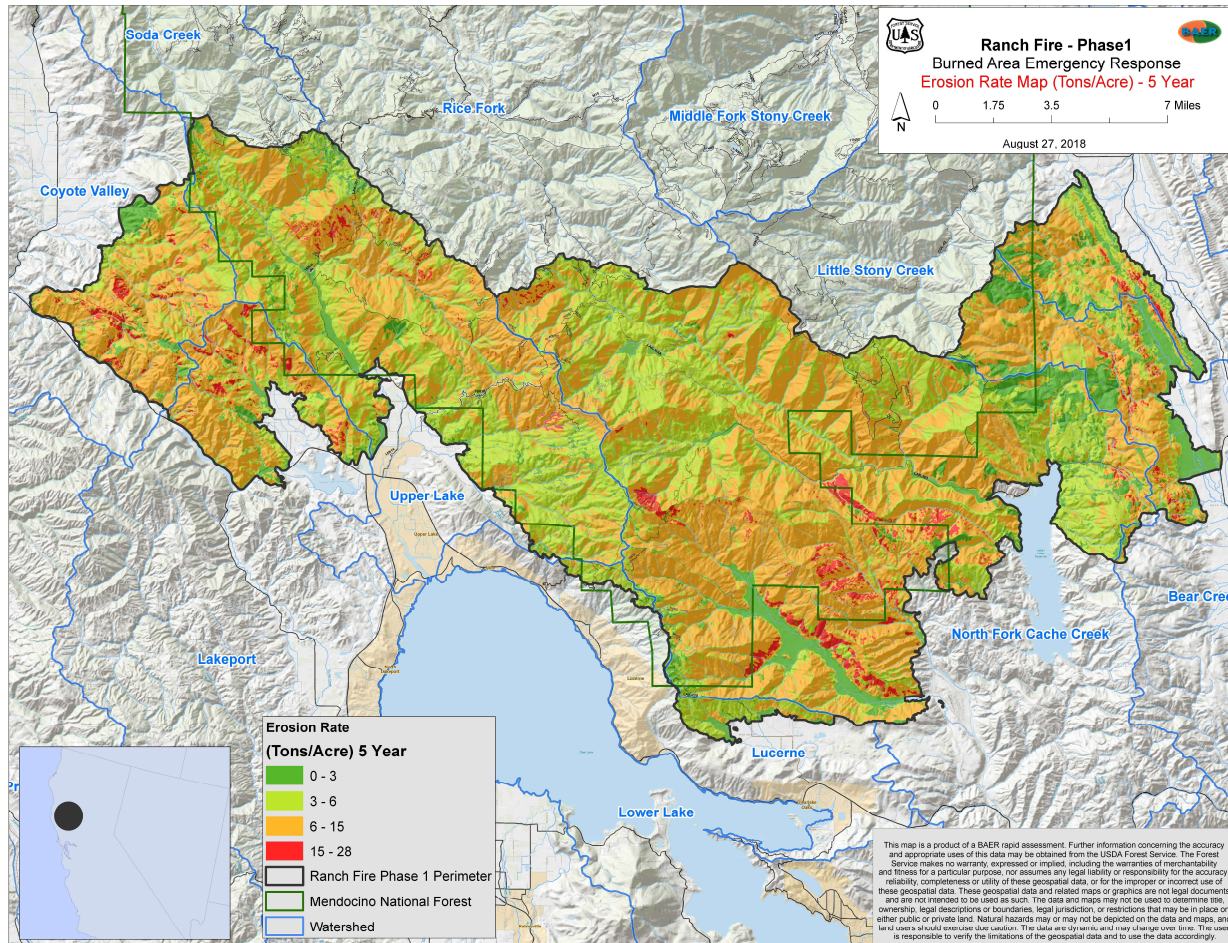


Water Repellency (Hydrophobicity)



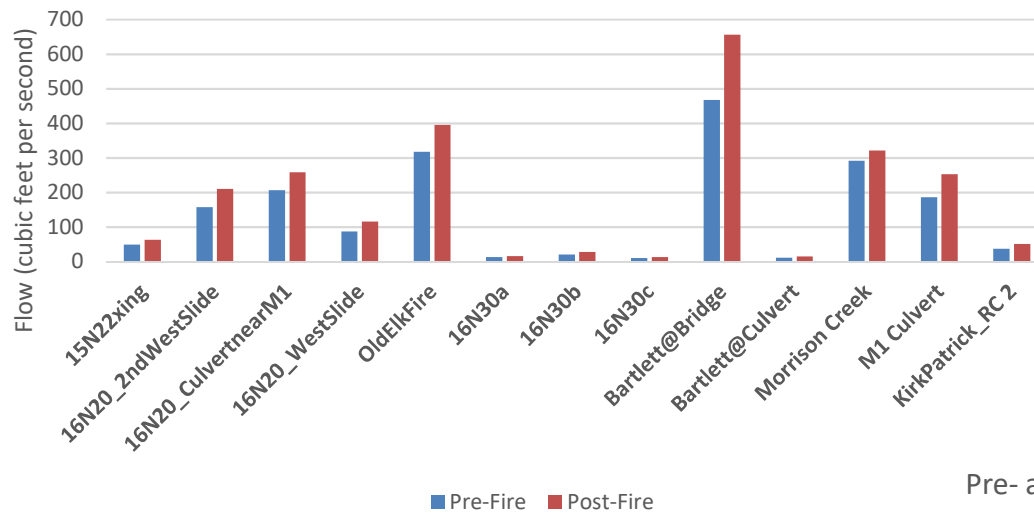
Post Fire Practices and Policies - BAER

FS-WEPP Erosion Modeling - ERMiT



Post Fire Practices and Policies - BAER

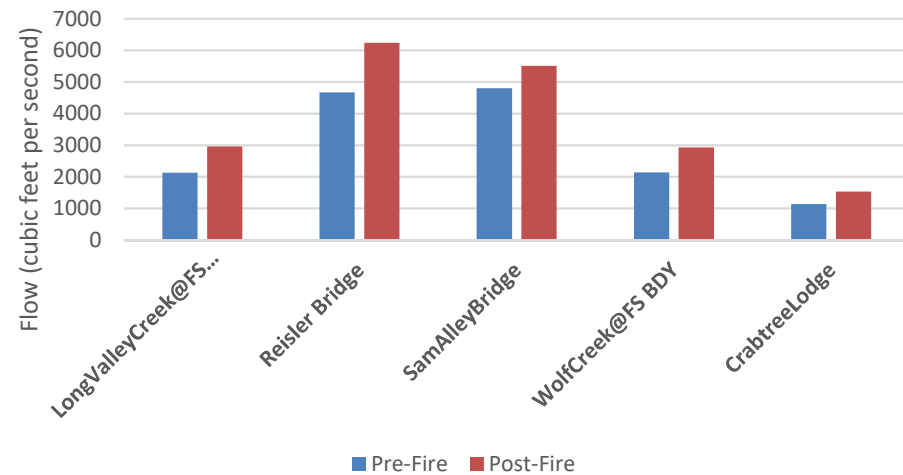
Pre- and Post- fire flows for PourPoints of interest



Post-Fire Hydrologic Response

2-year 24 hr. storm (3.6 inches)

Pre- and Post- fire flows for PourPoints of interest



Post Fire Practices and Policies - BAER

- **Given a typical winter storm, we do not anticipate extremely large increases in flow due to the burned area.**
- **FS roads and trails should be treated or monitored to protect infrastructure and water quality**
- **Water from Lake Pillsbury and Clear Lake may be temporarily impacted by turbidity and/or debris during large storm events**

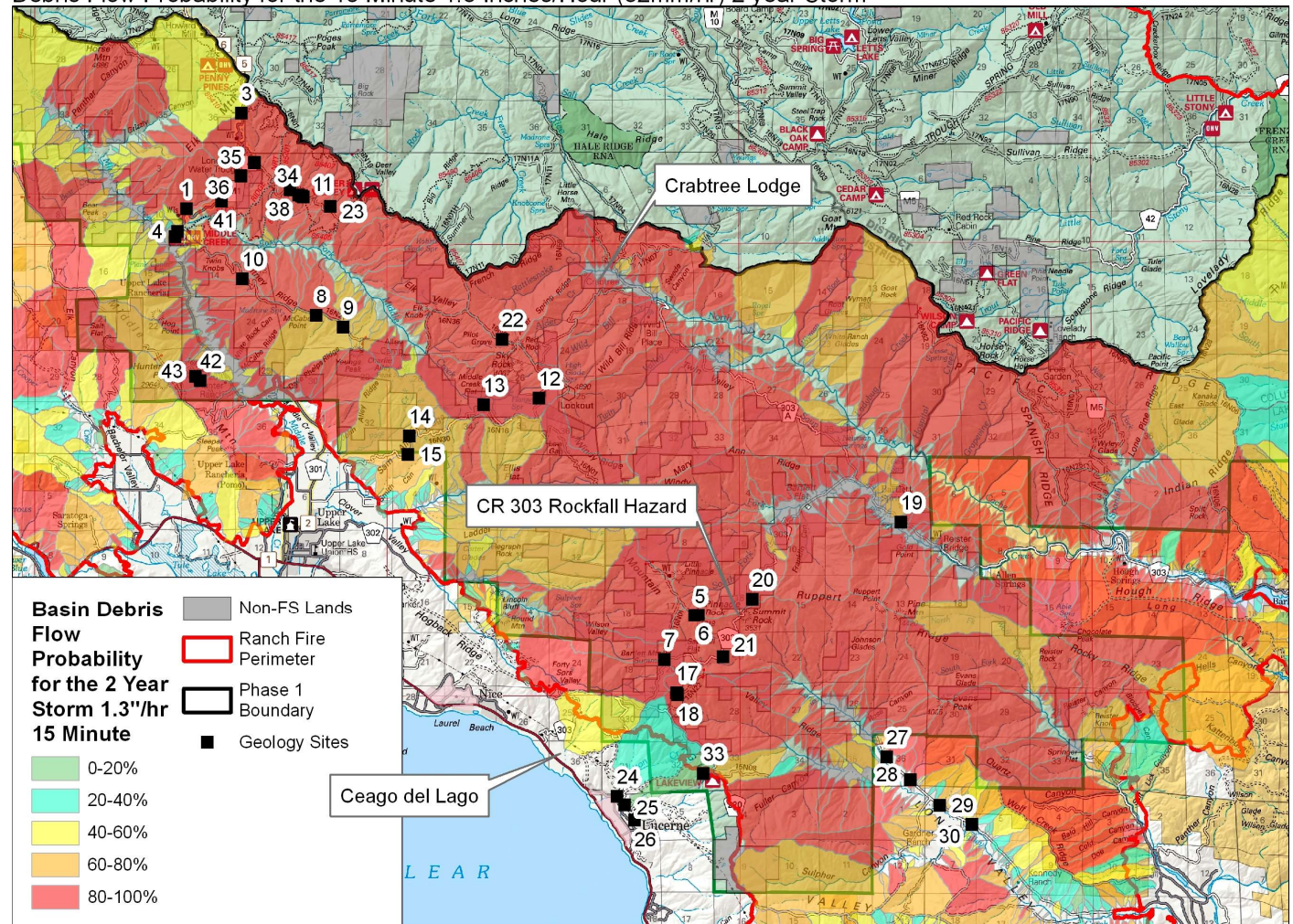


Post Fire Practices and Policies - BAER

Debris Flow probability

- 2 year storm (1.3 inches/hr for 15 minutes)
- Most debris will not reach Clear Lake

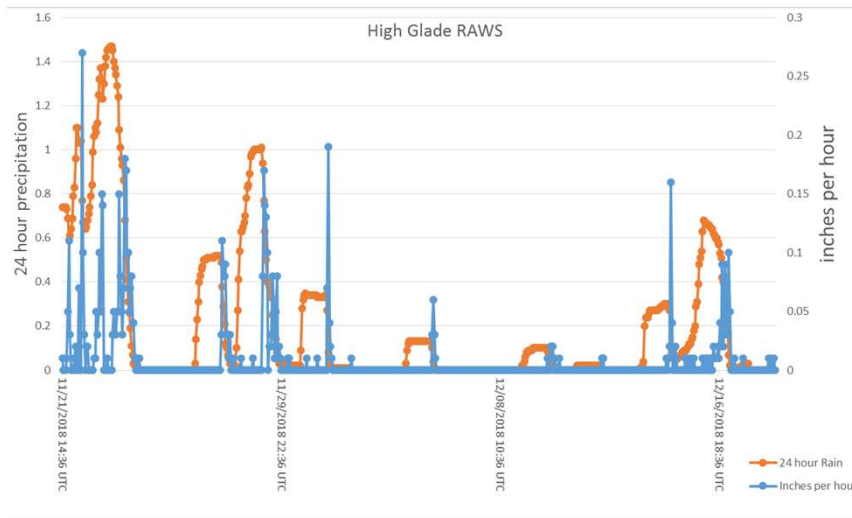
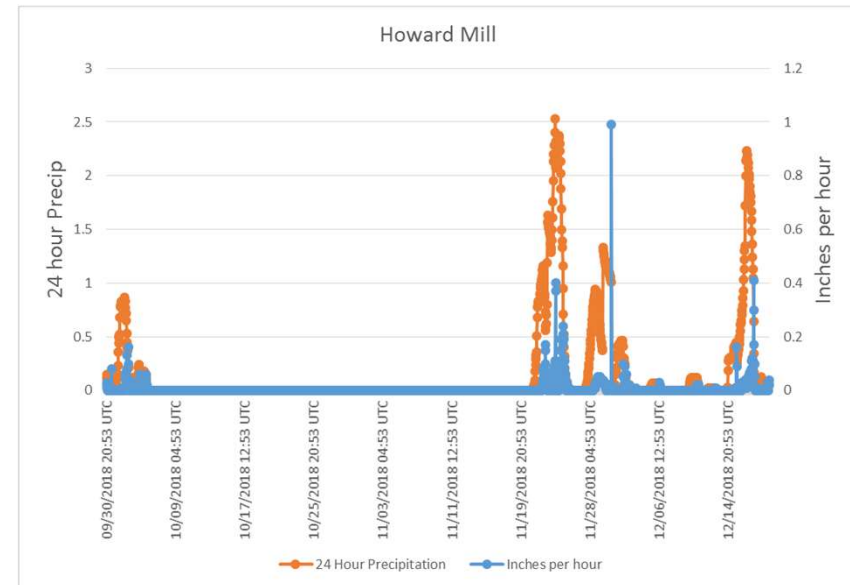
Debris Flow Probability for the 15 Minute 1.3 Inches/Hour (32mm/hr) 2 year Storm



Post Fire Practices and Policies - BAER

Howard Mill RAWS

- 2.5 inches in 24 hrs.
- 1 inch/hour



High Glade RAWS

- ~1.4 inches in 24 hrs.
- ~0.25 inch/hour



Treatments

- Treatments were approved mainly for roads, trails, invasive weeds, and heritage resource protection
 - New and reinforced rolling dips
 - “Storm-proofing” Roads
 - Closures
 - No surface treatments (e.g mulching) approved



Post Fire Practices and Policies – BAER – Road Treatments

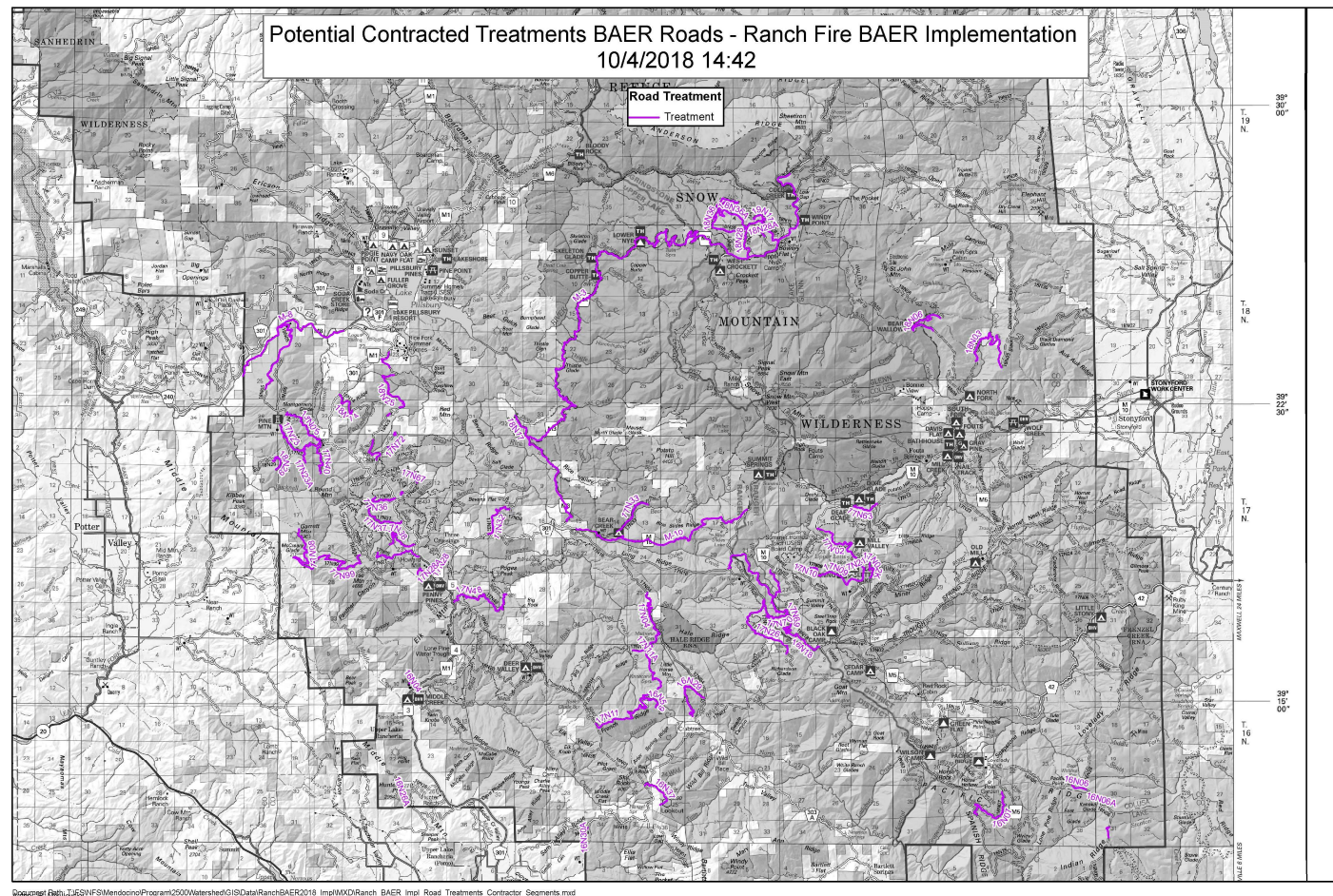


Armored rolling
dips

Culvert armoring



Storm-proofing



Post Fire Practices and Policies – BAER – Trail Treatments

Blockades



Culvert Removal



Post Fire Practices and Policies - BAER - Summary

	Phase 1	Phase 2	Total
Weeds	27,616	79,730	107,346
Roads	440,576	584,928	1,025,504
Trails	32,350	101,241	133,591
Cultural	97,936	145,410	243,346
Warning Signs	14,900	12,480	27,380
Closure and Monitoring	70,332	163,260	233,592
Hazard trees	10,000	14,760	24,760
Total	\$693,710	\$1,101,729	\$1,795,439



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Post Fire Practices and Policies

Questions?



Pine Mountain
lookout (eligible for
national historic
register, saved by
Mendocino National
Forest fire personnel)

