



**M. Watershed Numbers:**

Subwatersheds	Total Acres	Unburned Acres	Burn Severity		
			Low Acres	Moderate Acres	High Acres
Shackelford (180102080502)	27122	24365 (90%)	1974 (7%)	655 (2%)	129 (>1%)

Estimated acres of watershed burned includes both Klamath National Forest lands as well as Non-Forest Service lands.

**N. Total Acres Burned:**

[1,659] NFS Acres    [ ] Other Federal    [ ] State    [1,970] Private

	Total Acres	Unburned Acres/ Very Low	Burn Severity		
			Low Acres	Moderate Acres	High Acres
Total Fire	3,628	871 (24%)	1974 (54%)	655 (18%)	129 (4%)
NFS Lands	1,659	498 (30%)	927 (56%)	194 (12%)	40 (2%)
Private Land	1,970	373 (19%)	1046 (53%)	461 (23%)	89 (5%)

**O. Vegetation Types:** The Log fire occurred primarily in a mixed evergreen forest dominated by Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) and ponderosa pine (*Pinus ponderosa* Lawson & C. Lawson), with mixed components of white fir (*Abies concolor* (Gord. & Glend.) Lindl. Ex Hildebr.) and incense cedar (*Calocedrus decurrens* (Torr.) Florin). Hardwood understories were generally composed of giant chinquapin (*Chrysolepis chrysophylla* (Douglas ex Hook.) Hjelmqvist), California black oak (*Quercus kelloggi* Newberry), big leaf maple (*Acer macrophyllum* Pursh), and Pacific dogwood (*Cornus nuttallii* Audobon ex Torr. & A. Gray). The understories in early seral stage conifer stands on private land were dominated by regenerating shrub fields of deer-brush (*Ceanothus integerrimus* Hook & Arn.) and green-leaf manzanita (*Arctostaphylos patula* Greene).

**P. Dominant Soils:** The order 3 Soil survey information is used to describe project area soils. Major soils associated with the Log Fire area include Nanny (51 percent), Kindig (14 percent), Jayar (7 percent), Neuns (7 percent), and Woodseye (7 percent). The Parks, Kang, Beaughton, and Lithic-ruptic-Xerochrepts Haploxeralfs soil types are present in minor amounts (Appendix 1).

The Nanny Series are formed in alluvium from basic igneous rock. Kindig, Jayar, and Woodseye Series formed from colluvium weathered from metamorphosed igneous and sedimentary rocks. Neuns and Woodseye Series are formed from Metamorphic rock. Parks, Kang, and Beaughton soils formed from Ultramafic rocks. Except for the Woodseye and Beaughton soils which are shallow, soils within the Log Fire are moderately deep to very deep.

**Q. Geologic Types:** The fire area is underlain primarily by metasedimentary/metavolcanic rocks that are part of the Saywers Bar Terrane of the Klamath Mountain Geologic Province. These rocks are Permian to Jurassic in age. There are small portions granitic plutons along the southern portion of the fire perimeter. There is some Rattlesnake Creek Terrane ultramafic rock in the northwest portion of the fire perimeter mainly in the Shackelford Creek drainage. There are glacial deposits in the headwaters of Mill Creek and along Shackelford Creek. There are no dormant landslide deposits in the fire perimeter and only one small road related active landslide is mapped. There is no evidence of debris flows from the 1997 or the 2006 storm events in the aerial imagery.

**R. Miles of Stream Channels by Order or Class:**

<b>Flow Regime by Severity (Miles)</b>					
<b>Flow Regime by Land Status</b>	<b>Very Low Severity (Miles)</b>	<b>Low Severity (Miles)</b>	<b>Moderate Severity (Miles)</b>	<b>High Severity (Miles)</b>	<b>Total (Miles)</b>
<b>Klamath NF</b>					
Intermittent	1.77	4.56	1.53	0.46	<b>8.32</b>
Perennial	2.72	2.52	0.03	0	<b>5.27</b>

**S. Transportation System**

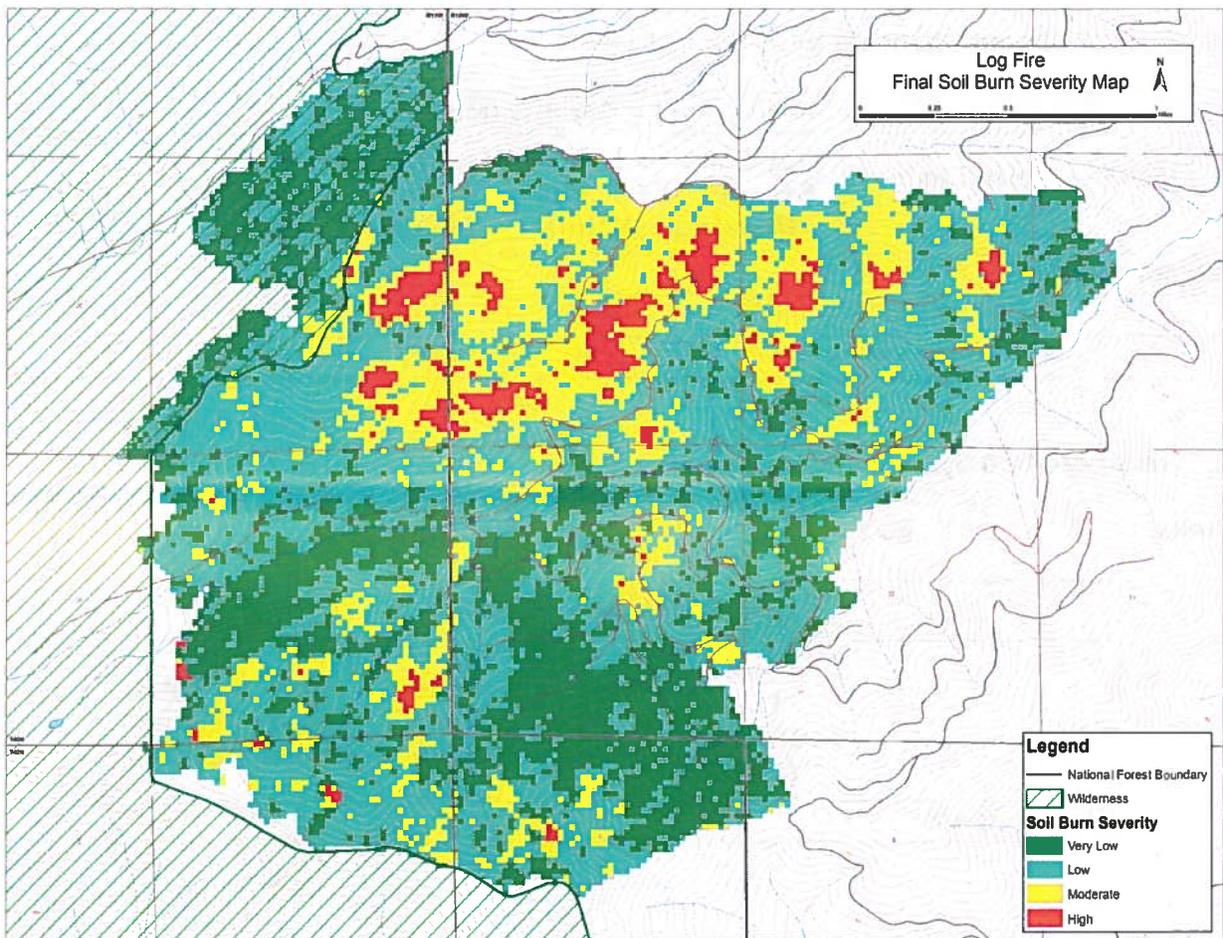
**Trails:** 0      **FS Roads:** 0      **Private Roads:** 4.30

<b>Miles of Roads by Severity</b>					
	<b>Very Low Severity (Miles)</b>	<b>Low Severity (Miles)</b>	<b>Moderate Severity (Miles)</b>	<b>High Severity (Miles)</b>	<b>Total Burned (Miles)</b>
Private Roads	2.75	8.21	2.10	0.10	<b>13.17</b>

**PART III - WATERSHED CONDITION**

The Log Incident was a lightning caused fire that started on July 31, 2014 on the ridge between Shackleford and Mill Creeks on privately owned land southwest of the community of Quartz Valley, and east of the Marble Mountain Wilderness boundary. Approximately 3,628 acres were burned during the Log Incident with 1,659 acres occurring on the Klamath National Forest.

**A. Burn Severity (acres):** (very low) 871 (24%) (low) 1974 (54%)  
 (moderate) 655 (18%) (high) 129 (4%)



**B. Water-Repellent Soil (acres):** 411 acres\*

\* Soil hydrophobicity was measured as high on approximately 65 percent of the high soil burn severity plots and on approximately 50 percent of the moderate soil burn severity plots..

**C. Soil Erosion Hazard Rating (acres):** Erosion Hazard Ratings for low, moderate, and high soil burn severity.

Rating	Acres	Percent
low	0	0
moderate	2047	57
severe	393	10
very severe	1188	33
<b>total</b>	<b>3628</b>	<b>100</b>

1-Areas with low soil erosion hazard are all classified as lava flows and cinderlands  
Estimates include both Klamath National Forest Lands and non-Forest Service Lands.

**D. Erosion Potential:** Average erosion potential is 1.18 tons/acre. (Calculated from WEPP-ERMiT for a 2-year storm event and untreated hillslope. Model accuracy is +-50%)

**E. Sediment Potential:** 503 cubic yards / square mile (Calculated by converting erosion potential in D. to cu yards/square mile (assuming 1 cu yards equals 1.5 tons) and using a 10 percent delivery factor)

#### **PART IV - HYDROLOGIC DESIGN FACTORS**

- A. Estimated Vegetative Recovery Period, (years): 5**
- B. Design Chance of Success, (percent): 80**
- C. Equivalent Design Recurrence Interval, (years): 5**
- D. Design Storm Duration, (hours): 6**
- E. Design Storm Magnitude, (inches): 1.85**
- F. Design Flow, (cubic feet / second/ square mile): 41**
- G. Estimated Reduction in Infiltration, (percent): 44**
- H. Adjusted Design Flow, (cfs per square mile): 59**

#### **PART V - SUMMARY OF ANALYSIS**

**A. Describe Critical Values/Resources and Threats (narrative):**

The following is a brief summary of the values within and along the fire area as well as the threats to those values.

**Values at Risk:**

The risk matrix below, Exhibit 2 of Interim Directive No.: **2520-2010-1**, was used to evaluate the Risk Level for each value identified during Assessment:

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
<b>RISK</b>			
Very Likely	Very High	Very High	Low
Likely	Very High	High	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

Table of Risk Assessment for Critical Values at Risk for the Log Fire. Only the Critical Values that were determined to be an emergency were included in the table.

Critical Value	Value At Risk	Potential Threat	Probability of Damage or Loss	Magnitude of Consequences	Risk	Emergency?	Treatment
Life/PVT property	Private structures at bottom of Mill Creek including Mugginsville	Debris flows and flooding	Possible	Moderate	Intermediate	Yes	Inform NRCS and private land owners of risk
Pvt Property	Private roads in fire perimeter	Debris flows and flooding	Likely	Moderate	High	Yes	Inform NRCS and private land owners of risk
Natural resources	Native habitat prone to invasion	weeds	Likely	Moderate	High	Yes	Noxious weed detection surveys, hand pulling, and herbicide application on private land by Siskiyou County Department of Agriculture personnel.

**Values at Risk Narrative:**

**Private Infrastructure**

The hydrologic response as a result of the Log Fire has the potential to damage values both within and downstream of the fire. There are very little values at risk within the Forest

Service boundary this is due to a relatively small acreage burned, 1,659 acres, and only 14% burning moderate and high severity. Within the fire boundary private roads in drainages have the potential to be compromised especially in areas where high and moderate burn severity occur. Outbuildings and residences downstream on Mill Creek are expected to not experience damage due to their proximity to the creek and projected watershed response, however the public should be extra diligent during storms and avoid stream courses. The irrigation pipeline on Mill Creek has the potential to be compromised, it currently has woody debris on the supports of the pipe that should be cleaned and continued to be inspected between storms.

**Native habitat prone to invasion**

The Log fire on Klamath National Forest lands occurred largely in Roadless Wilderness areas where noxious weeds are absent. Infestations of Dyer's woad and diffuse knapweed occur adjacent to the fire footprint near a popular trailhead and are a likely seed source for spread into the burn area. Key concerns are invasion of presently un-infested Wilderness areas, activation of Dyer's woad and diffuse knapweed seed-banks, potential introduction of new invasive species by a variety of other vectors, and preserving wilderness values of natural conditions and ecological processes by maintaining a weed free state.

**B. Emergency Treatment Objectives:** The primary objective of this Burned Area Emergency Response Report is to recommend prompt actions deemed reasonable and necessary to effectively protect, reduce or minimize significant threats to human life and property and prevent unacceptable degradation of natural resources. The application of these BAER treatments would minimize on-site damages to the identified values at risk. The emergency treatments being recommended by the Log Fire BAER Team are specifically designed to achieve the following results.

Proposed Treatments

The objectives of the treatments are to:

1. Protect ecological value of biological diversity by monitoring and treating as necessary, sites where introduction of noxious weeds may have occurred in previously uninvaded sites.
2. Aid in the protection of private infrastructure by communicating risk assessments and coordinating with NRCS

**C. Probability of Completing Treatment Prior to Damaging Storm or Event:**

Land 90% Roads/Trails NA% Protection/Safety NA%

**D. Probability of Treatment Success**

	Years after Treatment		
	1	3	5
Land	90	90	90
Roads/Trails	NA	NA	NA
Protection/Safety	NA	NA	NA

**E. Cost of No-Action (Including Loss):** \$11,095

**F. Cost of Selected Alternative (Including Loss):** \$4,438

**G. Skills Represented on Burned-Area Survey Team:**

- |   |   |   |   |
|---|---|---|---|
| <input checked="" type="checkbox"/> Hydrology | <input checked="" type="checkbox"/> Soils | <input checked="" type="checkbox"/> Geology | <input type="checkbox"/> Range                  |
| <input type="checkbox"/> Forestry             | <input type="checkbox"/> Wildlife         | <input type="checkbox"/> Fire Mgmt.         | <input type="checkbox"/> Engineering            |
| <input type="checkbox"/> Contracting          | <input type="checkbox"/> Ecology          | <input checked="" type="checkbox"/> Botany  | <input checked="" type="checkbox"/> Archaeology |
| <input type="checkbox"/> Fisheries            | <input type="checkbox"/> Research         | <input type="checkbox"/> Landscape Arch     | <input checked="" type="checkbox"/> GIS         |

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**Team:**

Nikos Hunner, Soil Scientist  
 Angie Bell, Geologist and GIS  
 Erin Lonergan, Botanist  
 Kyle Wright, Hydrologist  
 Elaine Elliott, GIS

**H. Treatment Narrative:**

**Land Treatments:**

**Noxious Weed/Invasive Plant Detection Surveys and Treatment**

Treatments to mitigate the noxious weed emergency include initial detection surveys and subsequent treatment of any noxious weed populations located during surveys. Detection surveys will be conducted along completed fire lines (dozer and hand lines), drop points, staging areas, trail systems, and existing roads where invasion by noxious weeds is most probable. Surveys will begin in 2015 during appropriate phenological times for detection of target noxious weed/invasive plant species.

All newly discovered noxious weed populations on Forest Service land will be mapped and entered into the National Resource Inventory System (NRIS) according to National protocol. Treatment will be recorded as directed by the same National protocols. Noxious weed treatment on Forest Service land will consist of hand pulling to root depth and if seed is present, plants will be bagged and properly disposed.

Roads and completed fire lines on private property bordering Wilderness will be surveyed and treated with herbicides by a Siskiyou County Department of Agriculture Resource Protection Crew. County herbicide treatment will be tracked and documented according to current state of California guidelines. This BAER request would cover the cost of survey and treatment on private lands by Siskiyou County Ag. A 20 percent match would be contributed by Siskiyou County Ag for vehicle costs for proposed work on private lands.

Agency	Survey Needs							Treatment Needs	Cost			
	Dozer lines (miles)	Hand lines (miles)	Drop Pts/Helisports/Staging Areas (Acres)	Roads (miles)	Trails (miles)	High Severity Burn (Acres)	Camps (Acres)	Native Grass Seed (acres to plant)	Labor	Supplies*	Project Adm.**	Total
Forest Service	0	1.3	0.5	7	2.5	0	0	NA	1006	0	788	1794
County Ag	2	0	1	8	0	0	NA	NA	1260	400	984	2644
<b>Totals:</b>									<b>2266</b>	<b>400</b>	<b>1772</b>	<b>4438</b>

Labor estimate based on FY 2015 rates :

Personnel	Cost	Days	Total
Two GS-5	\$268	2	\$536
One GS-9	\$235	4	\$940
One GS-11	\$318	1	\$318
County Ag Vegetation Control Supervisor	\$246	4	\$984
County Ag Vegetation Control Specialist	\$132	6	\$792
County Ag Aid	\$78	6	\$468

\*Supplies = Herbicide cost, estimated at \$100 per day for 4 treatment days.

\*\* Project Administration includes: hiring, training, data entry, reporting, and crew supervision FS: (2 days for GS-9 and 1 day for GS-11); SCDA: 4 days for Veg Supv.)

**Roads Treatments:** None

**Protection/Safety Treatments:** None

**I. Monitoring Narrative:** None requested

**Part VI –Emergency Stabilization Treatments and Source of Funds**

Line Items	Units	Unit Cost	NFS Lands			Other Lands				All Total
			# of	BAER \$	Other \$	# of units	Fed \$	# of Units	Non Fed \$	
			Units							
<b>A. Land Treatments</b>										
Labor	Days	\$91	25	\$2,266	\$0		\$0		\$0	\$2,266
Supplies	Each	\$400	1	\$400	\$0		\$0		\$0	\$400
Project Admin	Days	\$253	7	\$1,772	\$0		\$0		\$0	\$1,772
20% Match for County Ag					\$0		\$0	1	\$529	\$529
<i>Insert new items above this line!</i>										
<i>Subtotal Land Treatments</i>				\$4,438	\$0		\$0		\$529	\$4,967
<b>B. Road and Trails</b>										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>										
<i>Subtotal Road &amp; Trails</i>				\$0	\$0		\$0		\$0	\$0
<b>C. Protection/Safety</b>										
Warning/stop signs				\$0						\$0
<i>Subtotal Protection/Safety</i>				\$0	\$0		\$0		\$0	\$0
<b>E. BAER Evaluation</b>										
Region 5 only				\$9,419	\$0		\$0		\$0	\$9,419
<i>Insert new items above this line!</i>										
<i>Subtotal Evaluation</i>				--	\$0		\$0		\$0	--
<i>Subtotal Evaluation</i>				--	\$0		\$0		\$0	--
<b>G. Totals</b>										
Previously approved				\$4,438						\$4,967
Total for this request				\$4,438						\$4,967

**PART VII - APPROVALS**

1.   
Forest Supervisor (Klamath NF) (signature)

2 Sept 14  
Date

2. \_\_\_\_\_  
R5 Regional Forester (signature)

\_\_\_\_\_  
Date

