

## BURNED-AREA REPORT

(Reference FSH 2509.13)

P. Dominant Soils: Acid igneous rock land: very shallow loam to loamy course sand; Tollhouse: shallow to very shallow rocky coarse sandy loam in material weathered from granodiorite, La Posta: rocky loamy course sands that formed in material weathered from granodiorite. All include rock outcrops and boulders.

Q. Geologic Types: Predominately Mesozoic granitic bedrock.

R. Miles of Stream Channels by Order: 1 = 3 miles, 2 = 1 mile

S. Transportation System

Trails: 0.0 miles      Roads: 5.8 miles

### **PART III - WATERSHED CONDITION**

A. Burn Severity (acres): Unburned = 49,413 (54.7%); Low = 29,235 (32.3%);  
Moderate = 11,683 (12.9%); High = 85 (0.1%)

B. Water-Repellent Soil (acres): very little detected

C. Soil Erosion Hazard Rating (acres): \*NFS land only  
31 (moderate) 35 (high) 5,248 (very high)

D. Erosion Potential: 15 tons/acre

E. Sediment Potential: 2,264 cubic yards / square mile

### **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): 2

D. Design Storm Duration, (hours): 24

E. Design Storm Magnitude, (inches): 2.83

F. Design Flow, (cubic feet / second/ square mile): 23

G. Estimated Reduction in Infiltration, (percent): 65

H. Adjusted Design Flow, (cfs per square mile): 38

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

A. Describe Critical Values/Resources and Threats:

1. **Threats to Human Life and Property:**

**Threats to Life:** The Harris Fire burned a total of 90,959 acres, of which 4,481 acres (5%) were within the Descanso Ranger District of the Cleveland National Forest. The following values were identified during the initial phase of the Harris Fire BAER assessment process as potentially "at risk" from the effects of the fire including increased runoff and debris flows, rock and debris fall, erosion and sedimentation, and landslides: users of National Forest System roads; public use of non-Forest Service

roads and facilities, including the reservoir keepers houses and reservoir workers, both within and outside the Harris Fire perimeter.

**Threats to Property:** Values identified as “at risk” due to the Harris Fire include:

National Forest System Property

Forest Service roads, approximately 5.8 miles of National Forest System Roads (NFSR) within the Harris Fire perimeter; Threatened and Endangered plant and animal species; and heritage sites.

Non-National Forest System Property

Barrett Lake (Municipal water supply) and non-Forest Service roads and facilities, both within and outside the Harris Fire perimeter, including the Dulzura conduit, the reservoir keepers houses, and the dam abutments.

- 2. Threats to Water Quality and Quantity:** Barrett Lake, a municipal watershed for the City of San Diego, is located in the Upper Cottonwood Creek and Pine Valley Creek watersheds. This municipal water source is potentially “at risk” due to the increase in sediment delivered to the lake and facilities. San Diego Water District Manager, Jeff Pasek, did not identify water quality as a concern during personal communications with the BAER Team.

Peak flow increases from the fire will also be bulked by ash, debris and other floatable and transportable material within the channel areas, especially within Wilson Creek . There is a probability that post-fire flows from the first runoff producing rain events will see a concentration of ash discharged into Barrett Lake, . This is a potential to affect a portion of the municipal water supply in Barrett Lake. The total area of watershed burned above Barrett Lake is about 5% of the total watershed tributary to Barrett Lake. Of this 3% burned at a moderate to high burn severity. The potential for adverse water quality effects, post fire flooding and increased sediment yield is high.

All of the sub-watersheds within the burn area are expected to see increased sedimentation that could potentially affect in-stream beneficial uses such as cold water fish habitat. Potential for short-term effects on water quality are high for the first rainy season in the burned drainages into Barrett Lake, including Wilson Creek.

Because the majority of the Harris Fire burn area was classified as moderate soil burn severity and is on steeper slopes with high rock content, the area did not meet the site selection criteria for hillslope treatments and is therefore untreatable. BAER hillslope treatments are not effective or proven on steeper (>60 percent) slopes with high surface rock contents. Unfortunately, these are steep slopes that are most prone to slope failure. No hillslope treatments are generally proposed on moderate burn severity lands for a combination of reasons such as the positive vegetative response in grasslands and shrub communities.

- 3. Threats to Long Term Soil Productivity:** There are no issues or threats identified to long term soil productivity due to the Harris Fire.

**4. Threats of Noxious Weeds and Invasive Weed Invasion:**

Burned areas provide opportunities for invasive plants to establish quickly because of disturbed soil, release of nutrients, and lack of competition. Noxious weeds could have been introduced to the area during fire suppression activities as there were no wash stations for vehicles and equipment arriving to the fire. Additionally, there exists noxious weed populations within the fire perimeter in the urban intermix and at areas used as drop points and safety zones. An emergency exists because there is a potential for spread from existing and introduced noxious and invasive weed populations within the burned areas.

**5. Threats to Wildlife Resources:** The wildlife concerns in the Harris Fire are:

1. Loss of vegetative cover and foraging habitat on TES and MIS species (California gnatcatcher, mule deer, mountain lion).

2. Impacts of potential sedimentation to riparian environments (Least Bell's vireo, southwestern willow flycatcher, arroyo toad).
3. Invasion of non-native noxious weeds (tamarisk, arundo) into TES habitats.

The emergency situation as discussed in the above section cannot be mitigated by direct treatment of wildlife habitats. This is due to the steepness and inaccessibility of the terrain with the Harris fire boundaries on Forest Service System lands. Any BAER treatments to wildlife habitat would likely not be effective in reducing post-fire impacts such as erosion or sedimentation. However, indirect treatments such as closure of burn areas will help reduce disturbance to sensitive habitats.

**6. Threats to Botanical Resources:** The potential values at risk for sensitive plants are the stability and viability of sensitive plant populations. There are 4 sensitive plants known to occur within the Harris Fire area. All of these sensitive plants are highly restricted in distribution. There are **no** plants within the Harris Fire area that are listed as **Federally Threatened or Endangered** with the US Fish & Wildlife Service.

**7. Threats to Heritage Resources:** No previously recorded sites occur on Forest Service lands within or immediately adjacent to the Harris Fire perimeter.

**B. Emergency Treatment Objectives:**

To protect life and property associated with the public and administrative use of the travel routes within and downslope/downstream of the Harris Fire, the BAER Assessment Team recommends the temporary, seasonal closure of the burn area to all recreational users. The closures will be accomplished by installing four new gates at strategic locations at route access points to the fire which will effectively close off the burn area when combined with the existing gates present in the area. Short segments of pipe rail barriers will accompany the gates to help close potential the entry points. Information boards with vehicle closure signs will be installed at the gate locations. Additional closure signs and warning signs will be installed at strategic route locations leading to the burn area to give users an early advisory of conditions ahead. Storm patrol and monitoring the effectiveness of road closures, to insure physical closure features (i.e. signs, gates, temporary fencing, etc.) are effective and in good repair, will occur. The temporary closure of the burn area will also give the burned slopes a chance to recover by establishing a vegetative cover without the potential for disturbance by public use in the burn area.

The treatments proposed will help reduce the risk to life and safety, the affects on water quality and soil productivity, the infrastructure (roads) investments, adjacent resource values and assure road function and future availability for access and administration of the fire area.

The road surface patrol objective is to maintain function to all identified drainage structures and features. Ensure the function of the road drainage structures and identify and correct hazards during and after storm events to reduce the risk of road surface failure. Actions include cleaning plugged culverts, over-side drains, and road crossings of ephemeral drainages to prevent stream flow from becoming diverted down the road surface. Minor slump and slide areas would be removed where needed to assure continued operation of drainage facilities. By clearing blockages and restoring drainage function, the road surface should be able to accommodate flows during the next storm. The road segments selected for emergency BAER treatments have reliable access for road crews to meet treatment objectives during the first 180 days (fall and winter).

To determine if the fire has enabled the establishment and spread of noxious weeds, and to detect such establishment and spread as early as possible, the BAER team recommends noxious weed detection surveys be conducted. Early detection dramatically increases the likelihood of successful treatment.

The BAER Team recommends maintaining communications with State, County, and Local governmental agencies and adjacent private landowners regarding the inherent watershed reponse to impending precipitation events.

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

Land 90 % Channel N/A % Roads/Trails 90 % Protection/Safety 95 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	90%	90%	90%
Channel	N/A	N/A	N/A
Roads/Trails	90%	90%	90%
Protection/Safety	90%	90%	90%

E. Cost of No-Action (Including Loss): \$4,185,840

F. Cost of Selected Alternative (Including Loss): \$1,285,840

G. Skills Represented on Burned-Area Survey Team:

☒ Hydrology ☒ Soils ☒ Geology ☐ Range ☒ Recreation  
☐ Forestry ☒ Wildlife ☐ Fire Mgmt. ☒ Engineering ☐ Contracting ☐ Ecology ☒ Botany  
☒ Archaeology ☐ Fisheries ☐ Research ☐ Landscape Arch ☒ GIS

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Core Team

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Gloria Silva (Forest BAER Coordinator – Cleveland NF)  
Karen Wiese (Botanist – Tahoe NF)  
Jeremy Haines (Archaeologist – Coconino NF)  
Melissa Schroeder (Archaeologist – Carson NF)  
Pete Gomben (GIS – Cleveland NF)  
Chuck Brickey (GIS – Tahoe NF)  
Anne Poopatanapong (Wildlife Biologist – San Bernardino NF)  
Michael Wopat (Geologist – California State Geological Survey)  
Rusty LeBlanc (Engineering – Stanislaus NF)  
Melissa Hallas (Engineering Trainee– Tahoe NF)  
Michelle Bearmar (Engineering – Cleveland NF)  
Joe Leone (Engineering – Cleveland NF)  
Tom White (Forest Resource Advisor – Cleveland NF)

H. **Treatment Narrative:**

Land Treatments:

Weeds: To determine if the fire has enabled the establishment and spread of noxious weeds, and to detect such establishment and spread as early as possible, the BAER team recommends noxious weed detection surveys be conducted. Early detection dramatically increases the likelihood of successful treatment. A detailed weed detection survey plan and cost analysis is found in the attached Appendix.

Channel Treatments: N/A

Roads Treatments: The following treatments were identified as BAER road treatments for the Harris Fire area:

1. Restore and Improve Drainage Function.
2. Install Rolling Dips with Lead-off Ditches
3. Install Culvert Inlet Treatments (MES)
4. Install Drainage Armor
5. Install and Repair Overside Drains
6. Remove and Install Culverts
7. Install closure gates
8. Install pipe rail barriers
9. Install Signs (BAER Warning / Information, and Administrative Closure)
10. Monitoring and Storm Patrol

The proposed treatments will be implemented on the Barber Mountain Truck Trail (17S10), and include: restoring and improving drainage function from MP-0.6 to MP-5.4, installing inlet treatments (MES) at MP- 3.9 (18") MP-4.0 (12") MP-4.1 (24") MP-4.6 (24") and replacing an existing 24"x42' culvert with the same size at MP-4.6. Install new 18" overside drains at MP-4.3 and 4.8. Installing 75 c.y. of drainage armor (rock) as energy dissipaters at overside drains and culverts outlets. Installing two BAER warning signs, storm patrol and monitoring over the winter.

Proposed treatments on the Lyons Peak Radio Facility road (17S11) include: restoring and improving drainage function from the Forest boundary at MP-2.0 to the radio facility at MP-3.0, installing three roadway dips and installing 25 c.y. of drainage armor (rock) as energy dissipaters at overside drains and culvert outlets. And install one BAER warning sign.

In addition to closure gates, associated pipe rail barriers and BAER Warning/ Information signs are proposed for installation at the Forest boundary entering the Harris fire in sections 13, 17, 29, and 30.

Estimated total cost of all proposed treatments including closure gates and associated pipe barriers is \$181,460.00. Estimated cost of proposed treatments related to road drainage function is \$70,660.00 or \$12,183.00 per mile for those roads assessed and summarized in this report.

#### **I. Monitoring Narrative:**

Forest personnel will monitor the BAER treatments to check that signs, information boards, temporary fencing, and gate closures are present and functioning properly to maintain closure integrity. For areas with seasonal closures because of storm events or possible high water flows, the monitor will ensure gates are closed and the area is swept for visitors prior to closure.

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

Interim #

			NFS Lands				Other Lands			All
		Unit	# of		Other				Non Fed	
Line Items	Units	Cost	Units	BAER \$	\$	# of units	Fed \$	Units	\$	Total \$
<b>A. Land Treatments</b>										
<b>Weed Survey:</b>				\$0	\$0		\$0		\$0	\$0
Salaries	days	\$310	12	\$3,720	\$0		\$0		\$0	\$3,720
PerDiem	days	0	0	\$0	\$0		\$0		\$0	\$0
Vehicles	miles	\$0.55	1,200	\$660	\$0		\$0		\$0	\$1,110
<i>Subtotal Weeds</i>				\$4,380						\$4,380
Install Gates	each	\$5,200	4	\$20,800	\$0		\$0		\$0	\$20,800
Pipe Rail Barriers	LF	\$30	3,000	\$90,000	\$0		\$0		\$0	\$90,000
<i>Subtotal Gates/Barriers</i>				\$110,800						\$110,800
<i>Subtotal Land Treatments</i>				<b>\$115,180</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$115,180</b>
<b>B. Channel Treatments</b>										
<i>Subtotal Channel Treat.</i>				<b>\$0</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$0</b>
<b>C. Road and Trails</b>										
<b>Road Treatments</b>										
Drainage Function	Mile	\$1,200	5.8	\$6,960	\$0		\$0		\$0	\$6,960
Dips	each	\$400	3	\$1,200	\$0		\$0		\$0	\$1,200
Culvert Inlets	each	\$1,250	4	\$5,000	\$0		\$0		\$0	\$5,000
Drainage Armor	cu. yd.	\$150	100	\$15,000	\$0		\$0		\$0	\$15,000
Overside Drains	each	\$1,000	2	\$2,000	\$0		\$0		\$0	\$2,000
Remove/Install Culvert	each	\$9,500	1	\$9,500	\$0		\$0		\$0	\$9,500
<i>Subtotal Road &amp; Trails</i>				<b>\$39,660</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$39,660</b>
<b>D. Protection/Safety</b>										
Warning / Info Signs	each	\$1,000	5	\$5,000	\$0		\$0		\$0	\$5,000
<i>Subtotal Signs</i>				<b>\$5,000</b>	<b>\$0</b>					<b>\$5,000</b>
<b>E. BAER Evaluation</b>										
Salaries	days	\$622	42	\$26,124	\$0		\$0		\$0	\$26,124
Per Diem	days	\$220	26	\$5,720	\$0		\$0		\$0	\$5,720
Travel - land	miles	\$0.5	4,600	\$2,300	\$0		\$0		\$0	\$2,300
Supplies	all	\$350	1	\$350	<b>\$0</b>		\$0		\$0	\$350
<i>Subtotal Assessment</i>				\$34,494						\$34,494
<b>BAER Implement.</b>										
BAER Implem. Leader	days	\$340	30	\$10,200	\$0		\$0		\$0	\$10,200
BAER Coord.	days	\$420	20	\$8,400	\$0		\$0		\$0	\$8,400
<i>Subtotal Implementation</i>				\$18,600						\$18,600
<i>Subtotal Evaluation</i>				<b>\$53,094</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$53,094</b>
<b>F. Monitoring</b>										
Storm Patrol	each	\$6,500	4	\$26,000	\$0		\$0		\$0	\$26,000
Monitor roads/ unauth motorized treatments	days	\$200	156	\$31,200	\$0		\$0		\$0	\$31,200
<i>Subtotal Monitoring</i>				<b>\$57,200</b>	<b>\$0</b>					<b>\$57,200</b>
<b>G. Totals</b>										
Previously approved				0						0
Total for this request				<b>\$ 270,134</b>						<b>\$270,134</b>

## **PART VII - APPROVALS**

1.           /s/William Metz                                   11/09/2007  
      William Metz  
      Forest Supervisor (signature)                             Date
  
2.           /s/ Beth G. Pendleton (for)                                   11/14/07  
      Regional Forester (signature)                             Date