Date of Report: 08-17-09

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[x] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[x] 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)

[ ] 2. Interim Report #____
[ ] Updating the initial funding request based on more accurate site data or design analysis
[ ] Status of accomplishments to date

[ ] 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Knight

B. Fire Number: CA-STF-002207

C. State: CA

D. County: Tuolumne

E. Region: 05

F. Forest: Stanislaus

G. District: Mi-Wok

H. Fire Incident Job Code: P5E27J (0516)

I. Date Fire Started: 7-26-09

J. Date Fire Contained: 8-9-09

K. Suppression Cost: 12 million

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 42
2. Fireline seeded (miles): NA
3. Other (identify): NA

M. Watershed Number: 180400100303

N. Total Acres Burned: 6,133
NFS Acres(5,142) Other Federal (0) State (0) Private (991)

O. Vegetation Types: Ponderosa Pine, Black Oak, Live Oak , manzanita, bear clover

P. Dominant Soils: Fiddletown – Josephine families complex, 35 to 75% slopes; Lithic Xerumbrepts – Fiddletown family – Rock outcrop complex, 35 to 75% slopes; Holland family – lithic Xerumberepts complex, 35- to 60% slopes

Q. Geologic Types: Metamorphic rociks of the Calaveras and Shoofly formations and granite rocks.

R. Miles of Stream Channels by Order or Class:
12.3 miles perenial; 15.1 miles intermittent

S. Transportation System

Trails: 0.0 miles Roads: 13.3 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 4506 (low) 1542 (moderate) 85 (high)

B. Water-Repellent Soil (acres): very low (based on vegetation type and lack of high severity burn)

C. Soil Erosion Hazard Rating (acres):
3380 (low) 2,500 (moderate) 253 (high)

D. Erosion Potential: 5.8 tons/acre (1^{st} year post-fire, Q_2 storm, lands withing fire perimeter)

E. Sediment Potential: 772 cubic yards / square mile (1^{st} year post-fire, Q_2 storm, HUC 6 assessment watershed)

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 5

B. Design Chance of Success, (percent): 90 (drainage on roads primarily)

C. Equivalent Design Recurrence Interval, (years): 25

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 2.4

F. Design Flow, (cfs per square mile): 20

G. Estimated Reduction in Infiltration, (percent): 20

H. Adjusted Design Flow, (cfs per square mile): 25

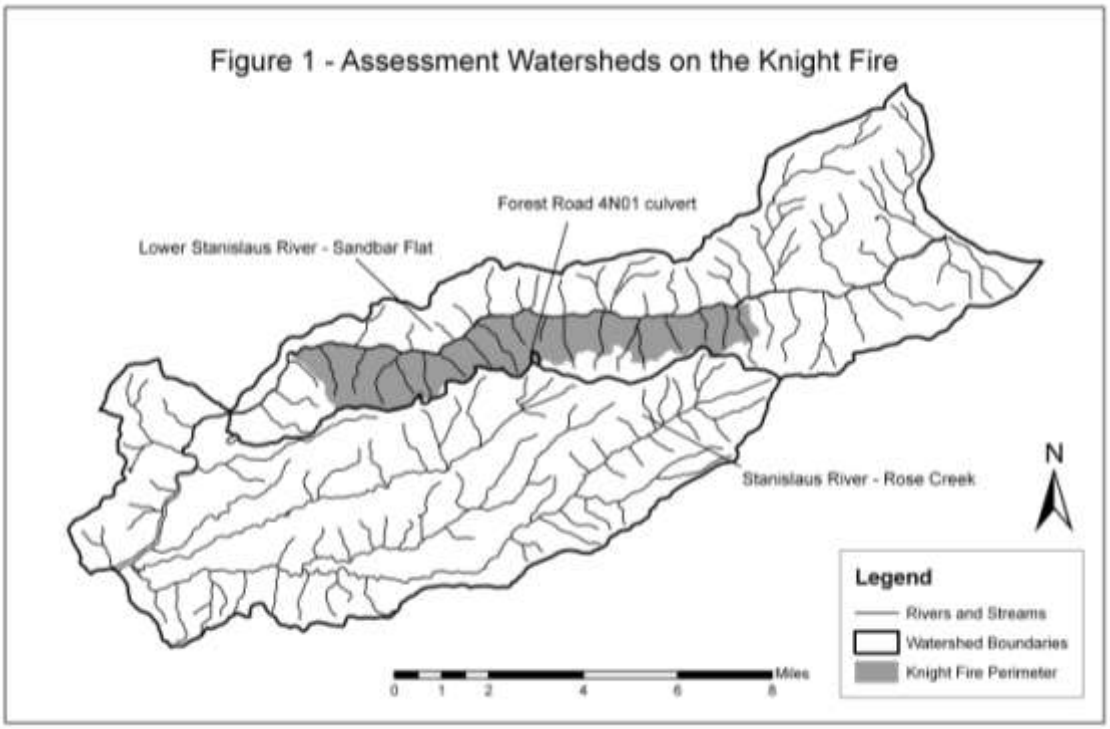
PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The Knight Fire burned 6,133 acres along 10 miles of steep river canyon. The burned area is almost entirely within the Middle Fork of the Stanislaus River watershed, 10 miles north of the community of Twain Harte (Figure1). Slopes are all north- facing as the fire did not jump the river.

- Land ownership is 84% National Forest; 14% Sierra Pacific Industries (SPI); 2% Other private including Knights subdivision

- Twenty six percent of the burned area is mapped as moderate and high soil burn severity (1% high, 25% moderate, 40% low, and 34% unburned).



Critical Values - There are two critical values determined by the BAER team: 1) threat to life on road 4N01; and 2) noxious weed spread on fire disturbed lands. Table 1 summarizes values at risk and recommended treatments to mitigate the emergency.

Threat to Life – Rockfall and debris slides as well as road hazard trees along 1.6 miles of 4N01 constitute a threat of injury or death to travelers. Slopes are very steep (60%) and soil burn severity is high and moderate along this road segment.

Property – Flooding or washouts are not likely on Forest roads. Roads have been adequitely storm-proofed through suppression rehab efforts. Drainage has been restored and culverts cleaned. Culverts appear to be adequitely sized to pass expected post-fire runoff. Flooding or erosion is not expected to be a serious threat on private property primarily because the acres are located at the top of the burned watershed and slopes are more gentle.

The Knights subdivision lands remained unburned with the exception of a small area of moderate burn severity. A tract of other private on the west end of the fire was mapped as mostly moderate and high burn severity. Full canopy scorch is common in the moderate burn severity and leaf fall is expected to be heavy.

Resources – Spread of noxious weeds is likely particularly yellow starthistle. The total miles of fire line (42 miles), half on Forest Servce and half on mostly SPI, along with heavily used roads in and adjacent to the fire are suseptible to invasion of noxious weeds.

Resources not at risk – Resources determined to be not at risk are wildlife, fish and heritage resources. The PACs located fully or partly in the burn are found in lightly burned vegetation and are not at risk. The recently occupied nest tree in one PAC was undamaged. Loss of aquatic habitat is not likely because peak flows is expected to flush the added sediment, given normal flows. No Class I or Class II cultural resource sites in the burned area of the Knight Fire are at risk from erosion, vandalism/looting, or increased recreation. No emergencey treatments are necessary.

Table 1: Values at Risk and Treatments

Values at Risk

Value Category	Hazard	At Risk	Emergency Yes/No	Recommended Treatments/Notes
Water Quality, Soil Productivity	Soil loss Sedimentation	Beneficial uses of water, soil productivity	**No**	None
Life & Safety	Rockfall, debris slide, road hazard trees	Public safety on 1.6 miles of road 4N01	**Yes**	Administrative closure with Forest order and signing
		Forest roads and trails	**No**	None, trail not evaluated
Property	Increased runoff	Subdivision	**No**	None
Plant Communities	Introduction or spread of invasive weeds	T&E Species	**No**	Weed Detection Survey on dozer lines
		Native Plant Diversity including Sensitive Plants	**Yes**	
Wildlife	Fire damage	Loss or degradation of PACs	**No**	None
Heritage Resources	Fire damage Postfire erosion and vandalism	Loss of integrity of Class II Heritage sites	**No**	None
Resource Protection & Safety	Unauthorised OHV use	Stabilization of firelines	**No**	Blocked by Fire Suppresion Rehab

Watershed Response - The BAER team hydrologist and soil scientist modeled erosion and runoff response in the steep burned watershed. Canyon slopes are quite steep (60%) and side channels drop quickly, 2000 feet in elevation to the Middle Fork of the Stanislaus River. Runoff and sediment that reaches an intermittent channel will likely reach the river. Post-fire watershed response (predicted runoff and sedimentation to channels) is shown in table 2.

- Peak flows are close to background levels.
- A substantial increase in sediment is expected. However peak flows of 5,000 cfs are common on the Middle Fork and will likely flush most sediment through, within two or three years.

- Soil and water resources are not at risk based on the soil burn severity map, modeling results and field recon.

Table 2: Burn Severity and Predicted Erosion and Runoff Response

Assessment Watershed	Total Acres	% High Burn Severity	% Low and Unburned	Erosion Pre-fire[1]	Erosion Post-fire[1] 1st year	Peak Flow X normal[2]
Lower Stanislaus River-Sandbar Flat	29,426	0.3	95	3.3 ac/ft	24.8 Ac/ft or 1.3 t/ac	1.04
Night Fire Only	6,133	1.3	73	0.7 ac/ft	22.2 Ac/ft or 5.8 t/ac	1.62*

* Small drainage above 4N01 culvert was modeled. This value may approximate average change in peak flow for moderate burn severity conditions in the Night Fire.
[1] Disturbed WEPP erosion model used with a 2 year return interval storm
[2] USGS gauge data and Log Pearson III model used with a 5 year return interval storm.

B. Emergency Treatment Objectives:

Prevent loss of life, maintain serviceability of roads, and prevent invasion of noxious weeds to help maintain the native plant community.

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

Land NA % Channel NA % Roads/Trails 100 % Protection/Safety 100%

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Weed treatment	80		
Channel	NA		
Roads/Trails			
4N01 closure	90		
Protection/Safety			
4N01 closure	90		

E. Cost of No-Action (Including Loss): $65,000

F. Cost of Selected Alternative (Including Loss): $75,100

G. Skills Represented on Burned-Area Survey Team:

[x] Hydrology [**x**] Soils [ ] Geology [ ] Range [ ]
[x] Forestry [**x**] Wildlife [ ] Fire Mgmt. [x] Engineering [ ]
[ ] Contracting [ ] Ecology [**x**] Botany [x] Archaeology [ ]
[ ] Fisheries [ ] Research [ ] Landscape Arch [x] GIS

Team Leader: Alex Janicki

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Team Members:

Hydrology: Tracy Weddle (STF)
Soils: Alex Janicki (STF)
Archeology: Stacy Lundgren (STF)
Pete Wisniewski (STF), trainee
Botany: Margaret Willits (STF)
Mike Morrison (STF), trainee
Biologist: Adam Rich (STF)
Marcie L. Baumbach (STF), trainee
Engineer: Rusty LeBlanc (STF)
Forestry Marty Gmelin (STF), adjunct member

H. **Treatment Narrative:**

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments:

Spread of noxious weeds, particularly yellow starthistle, is likely. Starthistle was known to occur at several locations close to the fire, including the fire camp and along the main road leading from the camp to the center of the fire

B. Treatment Objective. Detect new infestations while small enough to effectively eradicate and prevent the long-term establishment of new infestations. Eradicate new infestations to prevent the spread of noxious weeds beyond new detection sites. Prevent vectoring of weeds along roads. Protect Sensitive Plants from the adverse effects of noxious weed infestations.

C. Treatment Description. Conduct a weed detection survey along dozer lines, drop points, heavily used roads adjacent to the fire, and at roadside turnouts along the principle access routes to the fire and the fire camp to look for new noxious weed infestations and weeds spread from existing sites. Survey early enough to catch the early weeds. Rosettes of the later weeds should be visible. If they cannot be identified, collect a sample and waypoint the location for a revisit. Hand pull or dig all noxious weeds found. Bag and properly dispose of seed heads. Document findings.

	Miles on public land	width or area		acres
Dozer line	22	50	133.3	
Roads in the fire	4	50	24.2	
Other roads used heavily in the fire		15	50	90.9
Access roads (survey turnouts only)		12	0.2	2.4
number				

Drop points	7	0.5	3.5
Safety zones	2	0.5	1
Helispots (accessable)		20.5	1
total		256.4	acres

D. Treatment Cost: $9,100

Channel Treatments: No channel treatments

Roads and Trail Treatments:

Threat to Life – Rockfall and debris slides as well as road hazard trees along 1.6 miles of 4N01 constitute a threat of injury or death to travelers. Slopes are very steep (60%) and soil burn severity is high and moderate along this road segment. The 4N01 is a system road maintained by the Forest Service that is located on SPI and Knight subdivision land.

A. Treatment Description and Objective. Install two hazard warning signs west and east of the 1,6 mile segment of 4N01 (one at drop point 20 east of the entrance to the Knight subdivision and one just east of the FS gate in section 29). No gate will be placed at the drop point 20, but the sign will state that a locked gate is present 1.6 miles east. This section of road is administratively closed under Forest Order. The intent is to keep it closed now and through the rainy season (November – April), to mitigate the threat of road hazard trees or rocks and soil coming down on the road. The road must be inspected for hazard condions before re-opening.
Install informational signs, one at Schoettgen Pass and one on Italian Bar Road in a logical location. These will let users know that a hazard exists several miles ahead so they can choose not to proceed towards the closed area of the Knight Fire.
B. Treatment cost: $2,600 for 2 warning signs; $1000 for 2 informational signs

Trails – An unmapped trail takes off of 4N01 at drop point 20. The ATV drivable trail runs about half mile through private land before the trail enters Forest land, at which point the trail is said to be more of a fishing trail that continues to the river. The trail was not accessed at this time because of fire related hazards. The OHV District staff and BAER team may want to GPS map the route and access this trail further when conditions are safe.

Protection/Safety Treatments: See Road treatment above.

I. **Monitoring Narrative:**
(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

No additional monitoring requested.

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

Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
Noxious Weeds	ac	35.55	256	$9,101	$0		$0		$0	$9,101
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$9,101	$0		$0		$0	$9,101
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Warning signs	ea	1300	2	$2,600	$0		$0		$0	$2,600
Information signs	ea	500	2	$1,000	$0		$0		$0	$1,000
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$3,600	$0		$0		$0	$3,600
D. Protection/Safety										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation										
Salary and travel	ls			$20,113			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation					$0		$0		$0	$0
F. Monitoring										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$12,701	$0		**$0**		**$0**	**$12,701**
Previously approved										
Total for this request				**$12,701**						

PART VII - APPROVALS

1. /s Susan Skalski 8/20/2009
   Forest Supervisor (signature) Date

2. _____ _____
   Regional Forester (signature) Date