Date of Report: October 14, 2009

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

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

[X] 2. Interim Report # 1 .
[X] 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 (w/ Suppl. Sheet)

A. Fire Name: Hat Creek Complex and (SHU Lightning Complex)
B. Fire Number: CA-LNF-003923 (CA-SHU-005594)
C. State: CA
D. County: Shasta

E. Region: Pacific Southwest (R-5)
F. Forest: Lassen

G. District: Hat Creek
H. Fire Incident Job Code: P5E4AD

I. Date Fire Started: Aug. 12, 2009
J. Date Fire Contained: Aug. 16, 2009

K. Suppression Cost: $ $8.2 million

L. Fire Suppression Damages Repaired with Suppression Funds
1. **Fireline waterbarred (miles)**: 13.38
2. **Fireline seeded (miles):**
3. **Other (identify):** 12.4 roads used as fireline

M. Watershed Number:
Brown Butte Fire

1. Middle Hat Creek (HUC number 180200030709)

2. Lower Hat Creek (180200030712)

3. Eiler Gulch (180200030711)

Sugarloaf Fire

1. Thousand Lakes (180200030706)
2. Upper Hat Creek (180200030708)
3. Grassy Lake (180200030707)

N. Total Acres Burned:
[9,274**] NFS Acres [**46 **] Other Federal [ ] State [** 1,892**] Private**

O. Vegetation Types: Eastside Pine with a component of mixed conifer; mountain mahogany, manzanita and sage

P. Dominant Soils: Neer-Skalan Family Complex; Njeer-Sadie Family Complex

Q. Geologic Types: Predominantly volcanic rock primarily basaltic flows; some mudflow breccia and ash

R. Miles of Stream Channels by Order or Class: 1st Order -1.7 mi., 2nd Order - 5.6 mi.

S. Transportation System

Trails: 6.4 **miles** **Roads:** 19.9 **miles**

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 3,588 **(low)** 6,615 **(moderate)** 1,009 **(high)**

B. Water-Repellent Soil (acres): 3,640

C. Soil Erosion Hazard Rating (acres): 8,420 **(low)** 2,660 **(moderate)** 132 **(high)**

D. Erosion Potential: 0.02 **tons/acre**

E. Sediment Potential: 11.1 **cubic yards / square mile**

PART IV - HYDROLOGIC DESIGN FACTORS

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

B. Design Chance of Success, (percent): 90

C. Equivalent Design Recurrence Interval, (years): 100

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 2

F. Design Flow, (cubic feet / second/ square mile): Pre Fire = 21 csm

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

H. Adjusted Design Flow, (cfs per square mile): 25 csm
Note: This design storm is considered to be a very localized (i.e. covering less than 4 mi2 in area) high intensity short duration storm. The csm (cfs/mi^2) estimates should not be applied to watershed larger than 5 square miles.

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats (narrative): This assessment addresses the significant components of the Hat Creek Complex wildfire. The Hat Creek Complex includes three large fires and 34 small ones within the Hat Creek RD, Lassen National Forest. The three large fires were: Sugarloaf, Brown and Butte. Nearby and starting at about the same time was the SHU Lightning Complex being fought by Cal Fire. This complex consisted of forty fires. Two of these fires, Gomez and Cassel, are included in this report because they lie close to the Hat Creek Complex Fires and are within the Hat Creek RD.

Areas burned by the Gomez and Cassel Fires are flat to gently sloping and underlain by basaltic or andesitic (lava flow) rock. Due to their topography, bedrock/soil and burn intensity observed during field review, there are no threats to resource values creating a BAER emergency. Unless shown in the attached supplemental sheet, all values provided in Part II and III do not include the Gomez and Cassel.

In contrast, the Hat Creek Complex (HCC) included areas with more values at risk. Within the Brown and Sugarloaf fires (HCC) and the Cassel and Gomez fires of the SHU Lightning Complex (SHU), the existence of nearby invasive plant species and the many rehabbed dozer lines indicate a potential for significant spreading of these plants. Similarly, known cultural resource sites are present and newly exposed by loss of vegetation and more readily accessed by rehabbed dozer lines within the Brown and Sugarloaf fires (HCC) and the Gomez fire (SHU). Within the Brown Fire (HCC), a number of miles of Forest Road crossed steep slopes with moderate to high intensity burn severity posing a threat from increased runoff. Within the Sugarloaf fire (HCC), there are State Highways and Shasta County roads where increased risk may exist to their drainage system. There is also a drainage problem with a location on the Pacific Crest Trail and an adjacent historic Old Wagon Road. The burned riparian zone and areas adjacent to Hat Creek within Sugarloaf fire poses a concern due to its high recreational use, campgrounds, Angler's Trail and bridges. This concern is exacerbated by the easy access from SR 89. Approximately 10 cubic yards of material is likely to slide into Hat Creek this year due to the Sugarloaf Fire burning a series of wood retaining walls.

B. Emergency Treatment Objectives (narrative):

1) Avoid/limit looting or distrubance of cultural resouces sites within Gomez, Brown and Sugarloaf fire areas; especially a significant site near a Hat Creek Campground.

2) Prevent the spread of invasive plant species into Gomez, Cassel, Brown and Sugarloaf fire areas.

3) Avoid erosion damage to NFSR 34N76 roads within the Brown Fire.

4) Avoid loss of drainage structure and erosion damage to Pacific Crest Trail and adjacent historic Old Wagon Road near the Hat Creek Rim overlook within the Sugarloaf Fire.

5) Avoid erosion/flooding along Hat Creek due to burned trees falling and jamming free flow.

6). Avoid over 20 tons of sediment failure to Hat Creek.

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

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

D. Probability of Treatment Success

	Years after Treatment		
	1	**3**	**5**
Land	N/A	N/A	N/A
Channel	75	XXX	XXX
Roads/Trails	95	XXX	XXX
Protection/Safety	95	XXX	XXX

E. Cost of No-Action (Including Loss): See attached VAR spreadsheets

F. Cost of Selected Alternative (Including Loss): See Attached VAR spreadsheets

G. Skills Represented on Burned-Area Survey Team:

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

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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.)

Channel Treatments:

The riparian area of Hat Creek burned from moderate to high intensity from the FS road bridge below Old Station to Bridge Campground, a distance of 2.5 miles. This riparian area is resilient to erosion problems, (see Hat Creek discussion) but there are many fire killed conifers that will are likely to fall into the creek in next one to five years. Much of the time large woody debris in streams is beneficial to aquatic habitat, but there is a chance wood loading could be excessive and create problems. Debris dams could form that will divert the creek and damage the highway, the FS foot bridge at Rocky Campground, and/or cause problems for the irrigators downstream. A series of wood retaining walls were damaged along Hat Creek, leading to the risk of sediment failure and delivery to Hat Creek. The following actions are requested

a. A storm patrol is setup on the FS district to walk this stretch of stream, and inspect FS infrastructure after major runoff and wind events.

b. The use of a grapple machine is setup where by it can be used during storm events at short notice.

c. The local district is encouraged to directionally fall some trees away from the stream in the short term (not trees whose root structure contributes to bank stability)

d. Construct two separate, hand-placed rock retaining walls. Due to access limitations these will need to be hand-constructed. Rock can be delivered with trucks to approximately ¼ mile of the work site, after which all material will need to be transported by hand to the final construction location.

Roads and Trail Treatments:

NFSR 34N76 (sections 32 & 33, T35N, R 4E and sections 4 & 5, T34N R4E) experienced adjacent high burn severity. The current road drainage is not expected to accommodate the expected increased flows. Additional rolling dips are recommended along this section of road especially downgrade of existing culverts. Approximately 24 additional dips are recommended. One drainage crossing is undersized and not expected to handle increased flows and debris. It is recommended that the existing 18 inch corrugated metal pipe (CMP) be replaced with a 30 inch

CMP to accommodate the expected increased flows. Rolling dips will need to be surfaced and need keyed riprap for armoring dip outlets. Riprap material is available onsite.
NFSR 34N76A (section 5, T34N, R4E) has burn severities and potential runoffs that are expected to cause roadway damage to the transportation facility. One rolling dip is recommended just downgrade of the intersection with NFSR 34N76. Riprap material is available onsite for outlet armoring.

NFSR 34N76E (section 5, T34N, R4E) also has burn severities and potential runoffs that are expected to cause roadway damage to the transportation facility. One rolling dip is recommended just upgrade of the intersection with NFSR 34N76. This will protect any runoff on the road from being transferred onto the collector road NFSR 34N76 and damaging both roadways. Riprap material is available onsite for outlet armoring.

Protection/Safety Treatments:

1) Pacific Coast Trail (PCT) (section 27, T33N, R5E) has burn severities and potential runoffs that are expected to cause trail damage to the transportation facility. This segment of the PCT lies on a historic wagon trail. One 12 inch culvert has a plugged inlet and outlet and resides in a rock wall fill from the historic trail. This crossing is not expected to accommodate the expected increased flows, and should it fail the rock fill and heritage site would be damaged. Cleaning the inlet and outlet of the culvert and adding one rolling dip above the crossing and one below the crossing is recommended. Riprap material is available onsite for outlet armoring.

2) Botanical surveys will begin in 2010 within the Sugarloaf, Brown and Cassel Fire perimeters during the flowering periods of weed species. Completion of surveys along dozer lines, staging areas, and known invasive plant populations will be the first priority. The second priority will be surveys along roads, handlines, and drop points. Surveys of general habitats in the burned area will be the lowest priority. All locations of weed species will be documented and mapped using GPS equipment. Surveys will be completed using the NRIS protocol available at the national website: http://fsweb.ftcol.wo.fs.fed.us/frs/rangelands/index.shtml Results will be entered into the NRIS database.

3) Cultural Resouces treatments include:

Camouflage

1. The objective is to conceal artifacts and sites from prospective looters. This treatment is especially urgent because, once sites become locally established as artifact sources, looting will be extremely difficult if not impossible to prevent at these locations.
2. The preferred method is to gather pine needles and small limbs, supplemented by wood chips as needed, from a local source, then spread them as ground cover. This approach should have the added benefit of helping replenish the local seed bank in intensively burned areas. Where features are present or where ash layers from the Sugarloaf Fire would allow the chips or needles sink in rather than covering the ground surface, erosion blankets will be needed.

Barriers

1. The objective is to prevent off-road driving/parking within vulnerable archaeological sites, notably prehistoric sites flanking established roads.
2. The method is placing natural barriers (large boulders) along roadways or accessible dozer lines to prevent off-road driving. As with looting, the urgency stems from the need to prevent establishment of harmful patterns.
3. Boulders will be placed at potential entry points to the relevant sites, spaced approximately two feet apart to allow foot traffic but not vehicle access.

Section 106 Compliance

1. The objective is to keep all BAER measures that are applied to protect other types of resources from damaging cultural resources.
2. The method is pre-implementation survey (and subsequent archaeological input into project design) for areas in which sites, if present, could be adversely affected by BAER treatments applied to protect other types of resources. Consultation with the State Historic Preservation Officer will be required if adverse effects cannot be avoided.

Patrol

1. The objective is to maintain an increased Forest Service present to, if possible, discourage looting and off-road driving; it is also to help identify where such threats arise to the sites.
2. Patrol by a Forest Law Enforcement Officer will be needed to assess whether illegal/inappropriate activities, such as looting and off-road driving, are occurring within applicable sites.

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.)

Archaeological Effectiveness Monitoring

1. The objective is to determine whether the applied treatment measures are effective for a total of 10 sites (4 on the Gomez Fire, 6 on the Sugarloaf).
2. Monitoring by a qualified archaeologist will be needed to assess whether the protection measures are effective. The monitoring will emphasize the sites that are most likely to have impacts from public use.
3. The estimated cost is $1,120, for 4 person-days for a GS-11 Archaeologist.

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

Line Items	Units	Cost	Units	BAER $	$		units	$	Units	$	$
A. Land 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 Land Treatments				$0	$0			$0		$0	$0
B. Channel Treatments											
Hat Crk Storm patrol w/				$6,160	$0			$0		$0	$6,160
Selective felling				$6,400	$0			$0		$0	$6,400
				$0	$0			$0		$0	$0
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Channel Treat.				$12,560	$0			$0		$0	$12,560
C. Road and Trails											
Brown Fire road drainage				$44,000	$0			$0		$0	$44,000
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Road & Trails				$44,000	$0			$0		$0	$44,000
D. Protection/Safety											
Delayed Weed Suvey				$7,960	$0			$0		$0	$7,960
CR protection measures				$15,235	$0			$0		$0	$15,235
PCT drainage				$4,700	$0			$0		$0	$4,700
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Structures				$27,895	$0			$0		$0	$27,895
E. BAER Evaluation											
Assessment Team				$29,997				$0		$0	$0
Insert new items above this line!				---	$0			$0		$0	$0
Subtotal Evaluation				$29,997	$0			$0		$0	$29,997
F. Monitoring											
Cultural Resources				$1,120	$0			$0		$0	$1,120
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Monitoring				$1,120	$0			$0		$0	$1,120
G. Totals				$85,575	$0			**$0**		**$0**	**$115,572**
Previously approved											
Total for this request				**$85,575**							

PART VII - APPROVALS

1. ***/s/ Jack T. Walton for Kathleen S. Morse*** ***10/14/09***
   Forest Supervisor (signature) Date

2. ***/s/ Thomas A. Contreras (for)*** ***10/15/09***
   Regional Forester (signature) Date

Attachments

Hat Creek Complex and SHU Lightning Complex BAER Supplemental Sheet

1. Start and Contained Dates

Fire Name	Start Date	Containment Date
Sugarloaf	Aug. 8, 2009	Aug. 16, 2009
Brown	Aug. 8, 2009	Aug. 9, 2009
Butte	Aug. 8, 2009	Aug. 5, 2009
Cassel	Aug. 1, 2009	Aug. 15, 2009
Gomez	Aug. 1,2009	Aug. 11, 2009

2. Ownership (in acres)

Fire Name	NFS	Other Fed	State	Private
Sugarloaf	7,574			1,783
Brown	1,658	46		109
Butte	42			
	(9,274)	(46)		(1,892)
Cassel	827	3,896	641	733
Gomez	127			297