USDA-FOREST SERVICE FS-2500-8 (6/06)

Date of Report:

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: Porcupine Ranch

B. Fire Number: 8243

C. State: Utah

D. County: Grand County

E. Region: 4

F. Forest: Manti-La Sal

G. District: Moab/Monticello

H. Fire Incident Job Code: PNEH9P

I. Date Fire Started: 8/27/2008

J. Date Fire Contained: not yet contained

K. Suppression Cost: $2.3 million

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 1.06 (Dozer)
2. Fireline seeded (miles): 1.06 (Dozer)
3. Other (identify):

M. Watershed Number: HUC5 Placer Creek-Colorado River 1403000503
HUC6 Placer Creek 140300050305

N. Total Acres Burned: 3400
NFS Acres(**3344**) Other Federal ( ) State (**73**) Private (**15**)

O. Vegetation Types:
The elevation of the burned area varies from 6000 feet to 10000 feet resulting in a great varity of vegetation types. However the predominant vegetative cover is as follows; Gambel Oak (41%), Pinyon-Juniper Woodland (24%), Mountain Brush (14%), and Douglas Fir/Spruce Forest (9%).

P. Dominant Soils:
Soils are mapped by the Manti-La Sal National Forest. All soil mapping units for the Porcupine Ranch Fire area are documented in the NRCS Soil Survey of Canyonlands Area, Utah, Parts of Grand and San Juan Counties, January 1991. Dominate soils affected include soil mapping units 27, 36, 44, 46, 70, 77, 78, 86, 94 and 99 account for 3,221 acres in the burn area, or 94 % of the burn area.

Depending on location within the area, soils are derived from residuum weathered from sandstone, alluvium and colluviums derived from diorite, glacial till and outwash derived from diorite, and alluvium and colluviums derived from igneous and sedimentary rock. Soil textures are principally loamy fine sand, sandy loam, fine sandy loam and loam with all textures having rock modifiers of gravelly, cobbly, very cobbly and very stony.

Q. Geologic Types:
The majority of the burned area is composed of quaternery deposits – either Qmt (talus) on the steeper slopes or Qaf (alluvial fan deposits) in the Pinhook Valley floor. Some small outcrops of Jurassic sandstone are also present as well as intusive igneous bands in the higher elevations.

R. Miles of Stream Channels by Order or Class:
Nine miles of first order streams and six miles of second order streams.

S. Transportation System

Trails: 0.5 miles Roads: 8.0 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1100 (low/unburned) 1100 (moderate) 1200 (high)

B. Water-Repellent Soil (acres): 1200

C. Soil Erosion Hazard Rating (acres):
300 acres of rock outcrop 900 (low) 1100 (moderate) 1100 (high)

D. Erosion Potential: 13 tons/acre

E. Sediment Potential: 8300 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3
(for dominant veg Gambel Oak and Mnt Brush)

B. Design Chance of Success, (percent): 75

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

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): 1

F. Design Flow, (cubic feet / second/ square mile): 50

G. Estimated Reduction in Infiltration, (percent): 27

H. Adjusted Design Flow, (cfs per square mile): 183

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The following values were identified by the BAER team: the Castle Valley Sole Source Aquifer, private lands in Castle Valley (including the Porcupine Ranch at the boundary of the forest), Grand County's Loop Road, and the Pinhook Monument.

The Pinhook and Porcupine watersheds comprise a portion of the primary recharge area for the EPA designated Castle Valley Sole Source Aquifer. The Castle Valley residential development is dependent upon wells for all culinary water. The valley-fill aquifer is unconfined and the majority of recharge is from the the La Sal Mountains. An increase in runoff rates caused by increased soil hydrophobicity in high severity burn areas of the Porcupine Ranch Wildfire could decrease or alter overall recharge of the aquifer and possibly effect groundwater quality as well. A reduction in the shortterm soil loss and thus maintaining longterm soil productivity is also important for protection of the Castle Valley Sole Source Aquifer.

Private lands in Castle Valley including the Porcupine Ranch at the boundary of the forest could also be at risk for flooding, channel entrenchment and damage to irrigation systems, roads and other improvements. There is also a concern for public safety from floods. The BAER team is currently discussing options to improve public safety, specifically in Castle Valley, with Grand County Emergency Services.

The Pinhook Battlefield Monument is located next to the Pinhook Drainage. Flooding and scouring of the drainage could damage the existing features of the Monument.

The 'Loop' road transverses the La Sal Mountains through Grand and San Juan Countys. The road is an important by-way for the area and is actively promoted for tourism. This road is also a main access to forest service lands. This road is a county road with a FS easement. The Porcupine Ranch Wildfire burned across a portion of the 'Loop' road (high severity) as well as much of the watershed area above the road. Existing culverts may not be large enough to pass increased flows/sediment/burn material. This could result in damage to the road as well as impacts to the watershed downhill from the road due to altered flow paths, concentration of flows, and possible road failure.

B. Emergency Treatment Objectives:

- Reduce erosion and runoff from steep source areas at the top of the burn area that burned under high severity conditions and contain hydrophobic soills.
- Improve the drainage on the 'Loop' road to compensate for increased volume of water/sediment/burned material during storm events.
- Reduce erosion and runoff from select pinyon/juniper areas near the Pinhook Drainage by hand seeding and mulching coordinated with local Castle Valley Residents.
- Reduce damage to burned soils and retaining soil productivity through travel management measures such as installing 'closed' signs on currently unauthorized routes starkly visible after fire and initiating increased FPO patrols to enforce a temporary closure of a listed 'Open' travel area on MVUM map in Pinhook area.

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

Land **80** % Channel ___ % Roads/Trails **70** % Protection/Safety ___ %

We are dependent upon Grand County Road Department for culvert installation, this lowers the probability of completing treatment prior to damaging storm.

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Straw/wood mulch (alt2)	80	70	90
All wood straw(alt3)	80	90	90
Seeding of p/j	60	70	80
Channel			
N/A			
Roads/Trails	80	90	100
Protection/Safety			
N/A			

E. Cost of No-Action (Including Loss): 1,198,580

F. Cost of Selected Alternative (Including Loss): 736,000
Cost of all wood straw alternative (including Loss): 799,000

G. Skills Represented on Burned-Area Survey Team:

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

Land Treatments:

Land Treatments consist of wood-straw mulch, agricultural-straw mulch, seeding, and weed monitoring/treatment. The mulching areas are located in the upper watershed source areas within the burn, on steep facing slopes. The purpose of the mulch is to protect soils on steep slopes from raindrop impact, to reduce the event energy at the watershed head source areas, and to minimize soil erosion and debris-particle entrainment in the runoff at the source areas.

Wood Straw Mulch – 92 acres are proposed for wood-straw mulch. These areas are located on slopes 40% to 100%, on timber north and northwest facing slopes in high burn severity, and on soils having high water repellency. Wood straw mulch is appropriate for these areas because the wood straw is much more stable on steeper slopes. Plus, since timber areas take much longer to re-vegetate versus mountain brush areas, the wood straw mulch longevity is much greater than agricultural straw. Agricultural straw bio-degrades much faster and looses its effectiveness during the 2nd year. Wood straw will continue to protect into the 3rd, 4th, and 5th years following treatment, allowing extra time for plant rejuvenation within the timber areas.

Agricultural Straw Mulch – 112 acres are proposed for agricultural straw mulch. These areas are located on slopes up to 40%, on mountain brush slopes in high burn severity, and on soils having high water repellency. Mountain brush vegetation areas rejuvenate faster than timber areas, and re-vegetation is usually sufficient to provide adequate protection during the third growing season following the fire. Although these areas are located on slopes less than 40%, these open areas have little to no protection from wind, especially north to northwest storm fronts in these north to northwest facing watersheds, thus subjecting the agricultural straw from blowing off the treated slopes.

Seeding - Seed 20 acres of high and moderate burn severity pinyon/juniper and sagebrush sites by hand broadcast, raking, and hand straw mulch application at a rate of 13 lbs/acre utilizing volunteers (local residents targeted) in fall '08.

Seed Mix:
50% thickspike wheatgrass
40% basin wildrye
10% Indian ricegrass

Channel Treatments:
None proposed

Roads and Trail Treatments:
Improve drainage on 'Loop' road with two 20 foot culvert sections at each site:

- Upgrade one 18 inch to a 36 inch
- Upgrade one 18 inch to a 24 inch
- Install a new 24 inch culvert
- Install a new 18 inch culvert

Each site will also require an asphalt patch, packing sand for installation, and coconut wattles/logs at ten culverts to protect the inlets from ash and sediment flows. Grand County will provide the labor for installation and the Forest Service will provide the materials. The improved drainage will protect the road from damage during storm events as well as reducing the possibility of downhill/stream damage by altered flow paths and concentrated flows caused by inadequate drainage along the road. Grand County will supply the labor to install culverts and erosion control materials.

Install 'closed' signs on currently unauthorized routes starkly visible after fire and initiate increased FPO patrols to enforce a temporary closure of a listed 'Open' travel area on MVUM map in the Pinhook Area. This would protect fragile burned soils from damage and lessen overall potential impacts to the watershed area.

Protection/Safety Treatments:
In the case of a storm event of concern, the NWS would contact the Grand County Emergency Services directly, as well as issuing an alert in their normal manner. Grand County EMS does not currently have a reverse 911 service to contact residents but would contact the Castle Valley Fire Station to distribute alert information. No funding requested at this time.

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.)

Weed Monitoring and Treatment Contract – The purpose of this monitoring it to identify and treat for weed infestations within the burn area. The 112 acres treated by the agricultural straw mulch will be monitored for introduction of invasive plants. Although the mulch will be certified weed free, there is a good likelihood that some weeds will be introduced. Since cheat-grass is not a listed weed, most agricultural straw secured in the west is contaminated by cheat-grass seed. If needed, interim requests will be submitted for treatment of invasive plants that are introduced through the mulching treatments.

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

			NFS Lands				Other Lands			All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
seed/labor/mulch	acres	250	20	$5,000	$0		$0		$0	$5,000
ag straw w/ app.	acres	1000	112	$112,000						$112,000
wood straw w/ app.	acres	3500	92	$322,000						$322,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$439,000	$0		$0		$0	$439,000
C. Road and Trails										
culvert install (county match)					$4,519					4519
24"culvert	ea	24.4	80	$1,952			$0		$0	$1,952
18"culvert	ea	18	40	$720	$0		$0		$0	$720
36"culvert	ea	36.1	40	$1,444						$1,444
culvert bands	ea	135.15	1	$135						$135
asphalt patches	ea	1023	1	$1,023						$1,023
packing sand	ea	335	1	$335						$335
road closed signs	box	372.2	1	$372						$372
FPO patrols	ea	1500	1	$1,500						$1,500
erosion cntrl mtrls	ea	120	25	$3,000	$0		$0		$0	$3,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$10,481	$0		$0		$0	$15,000
D. Protection/Safety										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation										
				---	$7,877		$0		$0	$7,877
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$7,877		$0		$0	$7,877
F. Monitoring										
weeds	days	400	8	$3,200	$0		$0		$0	$3,200
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$3,200	$0		$0		$0	$3,200
G. Totals				$452,681						**$457,200**
Previously approved										
Total for this request				**$452,681**						

PART VII - APPROVALS

1. /s/Rod Player Acting — Sept 12,2008
   Forest Supervisor (signature) — Date

2. /s/ William P. LeVere for — 09/16/08
   Regional Forester (signature) — Date