

Date of Report: November 18, 2002  
(changes initial to interim shown as text color)

**BURNED-AREA REPORT**  
(Reference FSH 2509.13)

**PART I - TYPE OF REQUEST**

Type of Report

<input checked="" type="checkbox"/>	Funding request
<input type="checkbox"/>	Accomplishment Report
<input type="checkbox"/>	No Treatment Recommendation

Type of Action

<input type="checkbox"/>	Initial Request (Best estimate of funds needed to complete eligible rehabilitation measures)
<input checked="" type="checkbox"/>	Interim Report
<input checked="" type="checkbox"/>	Updating the initial funding request based on more accurate site data or design analysis
<input type="checkbox"/>	Status of accomplishments to date
<input type="checkbox"/>	Final Report (Following completion of work)

**PART II - BURNED-AREA DESCRIPTION**

Fire Name:	<b>Hammond</b>	Fire Number:	<b>UT-MLF-2190</b>
State:	<b>Utah</b>	County:	<b>San Juan</b>
Region:	<b>4</b>	Forest:	<b>Manti-La Sal</b>
District:	<b>Monticello</b>		
Date Fire Started:	<b>July 14, 2002</b>	Date Fire Contained:	<b>July 28, 2002</b>
Suppression Cost:	<b>Combined total Hang Dog plus Hammond \$3.6 million</b>		

Fire Suppression Damages Repaired with Suppression Funds	
Fireline waterbarred (miles):	0.8 mi handline restored/slashed
Fireline seeded (miles):	0
Other (identify):	Restoration of fire camp and helipad

Watershed Number:		14080201060 & 14080201080							
Total Acres Burned:		3812							
	NFS Acres:	3812		Other Federal:		State:		Private:	

Vegetation Types:	Oakbrush with sagebrush or bitterbrush or snowberry (1315 ac); Pinyon pine with Utah juniper and sagebrush or mountain brush (550 ac); Ponderosa pine with snowberry or mountain brush (550 ac); Serviceberry with sagebrush or mountain brush (965 ac); Mountain mahogany with sagebrush (30 ac)
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Dominant Soils:	Falcon-Sheckle-Rottulee families-Rock outcrop comp	336 ac
	Gulnare-Podo families complex, 3-20% slopes	98 ac
	Kunz Family, 5-20% slopes	901 ac
	Lobat-Gulnare families complex, 2-15% slopes	932 ac
	Rottulee-Falcon-Sheckle families complex, 3-20% slopes	577 ac
	Sheek-Ring-Podo families-Rock outcrop complex, 20-70% slopes	586 ac
	Sirref-Fughes-Harpole families complex, 3-25% slope	119 ac
	Bookcliff, warm-Jemez, dry-Pino families complex	144 ac
Geologic Types:	Quaternary landslides	1041 ac
	Chinle shale	2296 ac
	Moenkopi Formation	289 ac
	Cutler group; sandstones, shales	185 ac
Miles of Stream Channels by Order or Class:		
	First Order:	11.6
	Second Order:	3.9
	Third Order:	0.5
	Fourth Order:	
Transportation System (miles):		
	Trails:	
	Roads:	14

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

Burn Severity (acres): burn intensity from imagery was used as a surrogate for severity							
Low:	1131	Moderate:	1719	High:	565	Unburned:	397
Water-Repellent Soil (acres): observations while monitoring archeological treatments suggest well-developed but patchy surface hydrophobicity in areas burned at moderate and high intensity							
Low:		Moderate:		High:			
Water/Soil Erosion Hazard Rating (acres):							
Low:		Moderate:	2744	High:		Severe:	1068
Erosion Potential (tons/acre):			4.38				
Sediment Potential (cu yd/sq mi):			1211				

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

Estimated Vegetative Recovery Period, (years)	3-5 grasses/forbs 4-8 shrubs
Design Chance of Success, (percent)	n/a
Equivalent Design Recurrence Interval, (years)	n/a
Design Storm Duration, (hours)	n/a
Design Storm Magnitude, (inches)	n/a
Design Flow, (cubic feet / second/ square mile)	n/a
Estimated Reduction in Infiltration, (percent)	n/a
Adjusted Design Flow, (cfs per square mile)	n/a

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

The BAER team has identified the following values for which the fire has created emergency situations:

- A threat to archeological properties due to flash flooding, water and wind erosion, falling trees, rock falls and spalling, and increased visibility;
- A threat to life and property due to hazard trees adjacent to travel routes open to the public.
- A threat to the ecological integrity of the area due to invasive species and noxious weeds.

### *Archeological Resources*

The Monticello District is unique in Region 4 in the density, richness, and cultural significance of its archeological resources. There are an estimated 260 National Register eligible sites within the fire perimeter. The sites include cliff dwellings, villages, small pueblos, granaries and other storage structures, subsurface structures, and ceramic and lithic scatters. A high percentage of these sites (up to 60%) probably have human burials. These ancestral Puebloan sites are culturally important to the Hopi and other area tribes. Protection of archeological sites from post-fire effects, including vandalism, is important to the tribes and the Forest Service's relationships with the tribes.

The majority of the sites date to the late 800's and are part of the largest late Pueblo I community in southeast Utah. Site densities in some areas exceed 50 sites per square mile. During the 880's the population here was increasing while population was declining in southwest Colorado and other parts of southeast Utah. Therefore, this community is significant in the Four Corners area as well as locally because the sites in this area, including the burned area, are from a time period not well represented elsewhere in the Four Corners.

### *Hazard Trees*

Based on a preliminary reconnaissance, there are several hazard trees adjacent to FR 092. This road is the principle access to the west one-third of the District, including Dark Canyon Wilderness, and it is the only improved access in this portion of the District. Closing the road was not considered an option at this time.

### *Ecological Integrity*

Prior to the fire, the burned area had fairly high forage production ratings for livestock and big game. The forage was a mixture of native and introduced grasses, forbs, and shrubs. The effects of the fire coupled with the catastrophic drought make it likely that a large portion of the rootstock and seed sources in the burned area were destroyed. We expect limited resprouting or germination of grass and forb species in areas burned at moderate and high intensity; we expect limited resprouting of shrubs in areas burned at high intensity. The invasion of cheatgrass is of immediate concern. This species is found throughout the Monticello District and is well established on the northeast and east sides of the burned area. It is also established on BLM lands adjacent to the fire. Throughout the District, cheatgrass has quickly migrated into burned areas and other areas with ground disturbing activities.

Cheatgrass is quick to respond after a fire or similar disturbance activity. Once it is on site, it is very competitive and will result in an overall reduction in soil protection from wind and water erosion, in livestock and big game forage, and in protective ground cover for archeological sites. We propose to aerially seed the majority of the burned area with species designed to provide quick, initial cover plus more persistent species to provide competition to cheatgrass over a two to four year period. Seeding would provide additional protection for archeological sites and would maintain soil productivity for timber, range, and wildlife production.

### Emergency Treatment Objectives:

Assess the threat, design and implement protective treatments for all threatened archeological sites in the burned area.

With the loss of visual and physical barriers in areas of moderate and high fire intensity, we anticipate an increase in unauthorized ATV use. Patrol roads open to the public through and adjacent to the burned area and enforce the travel plan to prevent additional disturbance to the burned area itself and the archeological sites in the burned area. Road closures and/or gating may be considered if unacceptable damages occur.

Assess the safety threat of burned trees along FR 092 and fell all hazard trees.

Seed to 1) limit the opportunity for cheatgrass establishment in the burned area; and 2) provide protection from wind and water erosion thereby protecting archeological sites and maintaining the productivity of forest and range sites. *Based on a review of Effective Aerial Reseeding Methods prepared by Ryan Becker at San Dimas TDC and extensive follow-up discussions with the author, we propose to add a density-unifying coating to the seed mixture. This will be beneficial to the success of the seeding by ensuring proper application of the mix, reducing the floatability of the seed during spring runoff, and improving germination.*

Probability of Completing Treatment Prior to First Major Damage-Producing Storm:							
Land:	75	Channel:		Roads:	90	Other :	

#### Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land (arch sites)	85	90	98
Road	90	100	100
Land (seeding)	70	80	90

Cost of No-Action (Including Loss): \$5,735,200 (total) -- \$5,400,000 (archeology) plus \$335,200 (ecological integrity)

Cost of Selected Alternative (Including Loss): **\$915,348 (total)** -- \$570,314 (archeology) plus **\$345,034 (ecological integrity)**

#### Skills Represented on Burned-Area Survey Team:

<b>X</b>	Hydrology		Soils		Geology	<b>X</b>	Range
<b>X</b>	Forestry		Wildlife		Fire Mgmt.		Engineering
	Contracting		Ecology		Botany	<b>X</b>	Archaeology
	Fisheries		Research		Landscape Arch	<b>X</b>	GIS

Team Leader: Katherine Foster							
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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.)

#### Archeological Sites

All sites must be evaluated to determine threat. Not all will be threatened and need treatment. We estimate that 50% of the sites will need some type of treatment. This is based on the archeologist's observations during suppression and the BAER field reconnaissance, on a quick review of the District's site files, and on Mesa Verde National Park's experience in 2000. The number of sites to be evaluated and treated far exceeds the capability of the Forest. The evaluation and treatment should

be completed 60 days after it's start. We propose to use 3 teams of 3 archeologists to assess the threat to each site based on site topography, condition, and the nature of the site and then prescribe treatments. Treatments may include diversion of surface runoff around sites; seeding of ground cover species and shrubs, mulching and/or matting areas to limit surface soil erosion; felling of trees that might fall and damage surface structures; scaling of rock alcove and cliff surfaces to remove spalling rock; diversion of seep faces away from walls and other structures; seeding of shrub and tree species to accelerate the recover of screening vegetation; and stabilization of irrigation and farming embankments. A specialized crew will implement the site prescriptions as soon as they are completed under the supervision of an archeologist. This approach is similar to the one used by Mesa Verde National Park for their fires in 2000. The grass seed mixture will be the same as that proposed for ecological integrity and will include 3-4 grasses that provide quick cover. In addition we propose to seed selected areas with native shrubs to accelerate the recovery of screening vegetation. The rapid recovery of screening vegetation is essential to the protection of these sites. The shrub seed will be purchased with other funds available to the Forest.

#### *Hazard Trees*

Evaluate the area within a tree-length of FR 092 for hazard trees. Fell any hazard trees and leave on the ground.

#### *Ecological Integrity*

The objective is to seed the areas burned at high and moderate severity. However, the pattern of the burn does not lend itself to delineating seeding blocks based on burn severity. Therefore, the entire burned area will be seeded.

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.)

#### *Archeological Resources*

The monitoring emphasis will be on implementation and quality control/assurance this fiscal year. The effects of any thunderstorms will also be evaluated. At least half of the archeological sites with treatment will be inspected at least once during construction. All sites will be inspected after construction is completed.

Effectiveness monitoring will commence the spring and summer following implementation and will continue for 2 years. During this period treatments will be modified/maintained as necessary to ensure continued protection of the sites.

#### *Hazard Trees*

No monitoring will be done for hazard trees.

#### *Ecological Integrity*

Seeding will be monitored for proper application rates during implementation. Germination and seedling survival will be monitored for three years beginning the spring following application. Standard transect methodologies will be used to monitor both the success of the seeding and recovery of on-site species. **One small block in the burned area will be seeded with uncoated seed as a control to evaluate the relative success of coated vs. uncoated seed.**

There were no known noxious weed infestations in the burned area. However, we anticipate minor outbreaks of knapweed and/or Canada thistle. We will monitor the burned area for any noxious weed for three years beginning in 2003.



## Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands				All Total \$
			# of Units	WFSU SULT \$		# of units	Fed \$	# of Units	Non Fed \$	
<b>A. Land Treatments</b>										
Evaluate and design arch treatments	sites	742	260	\$192,920			\$0		\$0	\$192,920
Implement arch treatments	sites	1268	130	\$164,840			\$0			\$164,840
Shrub seed	acres	60	65		\$3,900					\$3,900
Seed - ecological integrity	acres	61.4	3800	\$233,320			\$0		\$0	\$233,320
Coating and aerial application	acres	22	3800	\$83,600			\$0		\$0	\$83,600
<i>Subtotal Land Treatments</i>				\$674,680			\$0		\$0	\$678,580
<b>B. Channel Treatments</b>										
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
<i>Subtotal Channel Treat.</i>				\$0			\$0		\$0	\$0
<b>C. Road and Trails</b>										
Patrol and enforce travel plan	day	315	30	\$9,450			\$0		\$0	\$9,450
Remove hazard trees	day	552	2	\$1,104			\$0		\$0	\$1,104
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
<i>Subtotal Road &amp; Trails</i>				\$10,554			\$0		\$0	\$10,554
<b>D. Structures</b>										
							\$0		\$0	\$0
				\$0			\$0		\$0	\$0
<i>Subtotal Structures</i>				\$0			\$0		\$0	\$0
<b>E. BAER Evaluation</b>										
initial assessment	days	601	28	\$16,828			\$0		\$0	\$16,828
interim report	days	379	11	\$4,169			\$0		\$0	\$4,169
<b>F. Monitoring</b>										
Implementation - first year	days	145	144	\$20,880			\$0		\$0	\$20,880
<b>G. Totals</b>				<b>\$727,111</b>			<b>\$0</b>		<b>\$0</b>	<b>\$731,011</b>

**PART VII - APPROVALS**

/s/ Elaine J. Zieroth

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Forest Supervisor (signature)\_\_\_\_\_  
Date\_\_\_\_\_  
Regional Forester (signature)\_\_\_\_\_  
Date