

Date of Report: August 2, 2002

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

**PART I - TYPE OF REQUEST**

Type of Report

<b>X</b>	Funding request
	Accomplishment Report
	No Treatment Recommendation

Type of Action

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

**PART II - BURNED-AREA DESCRIPTION**

Fire Name:	<b>Hang Dog</b>	Fire Number:	<b>UT-MLD-2190</b>
State:	<b>Utah</b>	County:	<b>San Juan</b>
Region:	<b>4</b>	Forest:	<b>Manti-La Sal</b>
District:	<b>Moab</b>		
Date Fire Started:	<b>July 14, 2002</b>	Date Fire Contained:	<b>July 23, 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):	16.9
Fireline seeded (miles):	Seeding will be deferred until late fall
Other (identify):	Restoration of fire camp and helipad. Road grading to restore effective cross-drainage.

Watershed Number:	14030002050, 14030003040		
Total Acres Burned:	5972		
NFS Acres:	5434	Other Federal:	
State:		Private:	538

Vegetation Types:	Aspen (12 ac); Sagebrush/grass (150 ac); upland parks/meadows (40 ac); Oakbrush with sagebrush or barberry or snowberry (1420 ac); Pinyon pine with serviceberry or Utah juniper and sagebrush or mixed mountain brush (660 ac); Ponderosa pine with barberry or Gambel oak or manzanita or mixed trees (2540 ac); Serviceberry with mixed mountain brush (1085 ac)
-------------------	---

Dominant Soils:	Benchlands and Pediment Surfaces	216 ac					
	Canyon Walls and Scarp Faces	150 ac					
	Carpenter Ridge Mesas and Sideslopes	1430 ac					
	Erosional and Fault Scarp Slopes	953 ac					
	Rock Structured Benchlands	1986 ac					
	Rolling Hills and Swales	149 ac					
	Steep Sideslopes and Dissected Hills	123 ac					
	Steep Sideslopes and Slumplands	201 ac					
	Undulating Mesa Tops	161 ac					
Geologic Types:	Dakota sandstone, Morrison formation, quaternary alluvium, quaternary landslide						
Miles of Stream Channels by Order or Class:							
First Order:	7.7	Second Order:	4.2	Third Order:	1.2	Fourth Order:	
Transportation System (miles):							
Trails:		Roads:	47.4				

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

Burn Severity (acres): burn intensity from imagery was used as a surrogate for severity					
Low:	1841	Moderate:	2220	High:	811
Water-Repellent Soil (acres): not yet determined					
Low:		Moderate:		High:	
Water/Soil Erosion Hazard Rating (acres):					
Low:	275	Moderate:	4600	High:	725
		Severe:			
Erosion Potential (tons/acre):		4.77			
Sediment Potential (cu yd/sq mi):		1264			

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

Estimated Vegetative Recovery Period, (years)	2-5 years
Design Chance of Success, (percent)	Still being evaluated in cooperation with NRCS
Equivalent Design Recurrence Interval, (years)	
Design Storm Duration, (hours)	
Design Storm Magnitude, (inches)	
Design Flow, (cubic feet / second/ square mile)	
Estimated Reduction in Infiltration, (percent)	
Adjusted Design Flow, (cfs per square mile)	

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

#### *Current Situation*

The majority of the Hang Dog fire is in the middle section of the Hop Creek watershed. There was one high-intensity thunderstorm (approximately 1" over an hour) over the burned area and several less intense storms during the week of July 22. The high-intensity storm resulted in flash flooding in the burned area and downstream. There was no evidence of flash flooding in the tributaries above the burned area. There was evidence of widespread overland flow from the burned area. In several areas of the burn, rilling was beginning within 10 feet of the ridge tops on relatively gentle slopes. The stock

ponds supplied by surface runoff are now serving as sediment detention basins; most are one-quarter to one-half full. This type and intensity of storm is common during the months of July, August, and early September. In localized areas intensity commonly exceeds 1 inch per hour. There are anecdotal reports of 4 inches in 2 hours.

The BAER team, including a local NRCS representative, has identified values for which the fire has created emergency situations:

- A threat to the ecological integrity of the area and the Hideout Mesa Research Natural Area due to invasive species and noxious weeds;
- A threat to life and property due to hazard trees adjacent to travel routes open to the public.
- A threat to FR 50072, the Lower Twomile Road, due to flash flooding, debris transport and deposition, and culverts not sized to the changed hydrology;
- A threat to the newly reconstructed Hop Creek Riparian/Watershed project due to flash flooding and loss of the protection fence; and
- A threat to life and property downstream in Hop Creek due to flash flooding.

This initial report addresses all threats except the last one with specific proposals. NRCS has agreed to do the hydrologic/runoff analysis to evaluate downstream flood risk and threat; we do not have the results yet. Analysis and evaluation of specific, appropriate treatments based on the runoff analysis will be documented in subsequent, interim reports.

#### *Ecological Integrity*

Prior to the fire, the vegetation was a mixture of native and introduced grasses, forbs, shrubs, ponderosa pine, and pinyon-juniper. The effects of the fire coupled with the catastrophic drought make it likely that a large portion of the rootstock and seed sources in areas burned at high intensity were destroyed. We expect limited resprouting or germination of grasses, forbs, and shrubs in areas burned at high intensity. The invasion of cheatgrass is of immediate concern. Throughout the District, cheatgrass has quickly migrated into burned areas and other areas with ground disturbing activities. Several adjacent burned areas were visited; the areas that were not seeded have well-established cheatgrass stands; cheatgrass is a minor component in seeded burned areas. One 10 acre burned area adjacent to Hideout Mesa RNA supports only sagebrush and cheatgrass. The NRCS representative corroborates these observations. In addition, there is one known noxious weed site within the fire perimeter west of the RNA.

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 selected areas with species designed to provide quick, initial cover plus more persistent species to provide competition to cheatgrass over a three to five year period.

#### Emergency Treatment Objectives:

Seed to limit the opportunity for cheatgrass establishment in the burned area and to provide protection from wind and water erosion. Hideout Mesa Research Natural Area will not be seeded. Replace 1.5 miles of pasture division fence. The fencing is located such that it would protect the seeded areas from livestock in the unburned portion of the allotment.

#### Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Land:	80	Channel:		Roads:		Other :	95
-------	----	----------	--	--------	--	---------	----

#### Probability of Treatment Success

Years after Treatment

1	3	5
---	---	---

Land	70	85	95
------	----	----	----

Cost of No-Action (Including Loss): \$384,350

Cost of Selected Alternative (Including Loss): \$338,849

#### *Hazard Trees*

Many of the larger ponderosa pine in the burned area were partially rotten at the base. In areas that burned at moderate and high intensity, the base of these trees is damaged enough that they are windthrowing with moderate winds. Some large trees adjacent to roads open to the public have already fallen; more are threats to the users of these roads.

#### Emergency Treatment Objectives:

Evaluate trees within one tree length of all roads open to the public. Fell hazard trees.

Probability of Completing Treatment Prior to First Major Damage-Producing Storm:							
Land:		Channel:		Roads:	80	Other :	

#### Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	n/a	n/a	n/a

Cost of No-Action (Including Loss): not evaluated

Cost of Selected Alternative (Including Loss): \$3390 (potential loss not evaluated)

#### *FR 50027, the Lower Twomile Road*

All of the culverts in the burned area were initially blocked by floatable debris and sediment carried by the flash flood described above. The culverts did eventually drain, however, the debris lines and other evidence of overtopping indicates that they are undersized for the combination of increased flow and the charcoal, ash, and debris still on the slopes above the culverts.

#### Emergency Treatment Objectives:

Replace all culverts in FR 50027 through the burned area with ones of sufficient diameter to pass debris, sediment-bulked flows and increased runoff. In most cases this will require at least doubling the diameter of the existing culverts.

Probability of Completing Treatment Prior to First Major Damage-Producing Storm:							
Land:		Channel:		Roads:	85%	Other :	

#### Probability of Treatment Success

	Years after Treatment		
	1	3	5
Roads	80	90	100

Cost of No-Action (Including Loss): \$21,000

Cost of Selected Alternative (Including Loss): \$12,675

*Hop Creek Riparian/Watershed Project*

The flash flood of 7/22 damaged some of the rock-faced structures in the project. Damage includes loss of rock facing, mainly from the spillway for a 3-4 foot width across the middle of the structures. There is also stream bank erosion from upland overland flow into the gully network. The enclosure fence protecting a portion of the project is damaged as is a log barrier blocking ATV access to the lower portion of the project area.

Emergency Treatment Objectives:

Repair structures before additional damage occurs that might lead to the failure of the structures. Limit access to the project area by livestock and ATV's.

Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Land:		Channel:	75%	Roads:		Other :	75%
-------	--	----------	-----	--------	--	---------	-----

Probability of Treatment Success

Channel	Years after Treatment		
	1	3	5
	70	85	95

Cost of No-Action (Including Loss): \$48,000

Cost of Selected Alternative (Including Loss): \$20,840

*Life and property downstream in Hop Creek*

There are two residences and several outbuildings downstream of the burned area at the confluence of Hop Creek and La Sal Creek. The 7/22 flash flood Hop Creek did not reach La Sal Creek. However, the debris lines and other indicators of magnitude do suggest that there is a downstream threat. The NRCS is doing the runoff modeling to estimate the magnitude of the change due to the fire and will work with the downstream landowners and San Juan County to decide whether an early warning system of some type is appropriate. The Forest will provide information about the degree and extent of hydrophobicity. We will use the results of the modeling to determine whether land treatments in addition to the seeding proposed as part of the response to the ecological threat are appropriate. In the short term approximately 20 stock ponds in the burned area are serving as flood and sediment detention basins. They should be cleaned at least annually while the vegetation is recovering and a final time before livestock grazing resumes in the burned area.

Emergency Treatment Objectives:

Pending

Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Land:		Channel:		Roads:		Other :	
-------	--	----------	--	--------	--	---------	--

Probability of Treatment Success

	Years after Treatment		
	1	3	5

Cost of No-Action (Including Loss): Pending

Cost of Selected Alternative (Including Loss): Pending

## Skills Represented on Burned-Area Survey Team:

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

## Team Leader: Katherine Foster

Email:	<a href="mailto:kfoster01@fs.fed.us">kfoster01@fs.fed.us</a>	Phone:	435-636-3503	FAX:	435-637-4940
--------	--	--------	--------------	------	--------------

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.)

Aerially seed 2640 acres with a seed mix of species selected to provide quick, initial cover plus more persistent species to provide competition to cheatgrass over a two to four year period. The seed mix and rationale is attached. Rebuild 1.5 miles of fence that would protect the seeding from livestock permitted in adjacent pastures.

Locate and fell hazard trees adjacent to all roads open to the public.

Replace all culverts on FR 50027 in the burned area with larger diameter ones.

For the Hop Creek project, reface damaged structures with rock. Shape and stabilize the streambanks damaged by overland flow using rock and filter cloth. Repair the exclosure fence. Place another log barrier to limit ATV access.

Remove accumulated sediment from 20 stock ponds temporarily serving as sediment detention basins.

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.)

*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.

There is one known noxious weed site in the burned area. We anticipate minor outbreaks of Canada thistle. We will monitor the burned area for any noxious weeds for three year beginning in 2003.

*Hazard Trees*

No monitoring will be done for hazard trees.

*FR 50027 and Hop Creek project*

Monitor effectiveness at all culverts and the entire Hop Creek project beginning after spring runoff in 2003 and continuing for 3 years using standard inspection techniques.

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

<b>A. Land Treatments</b>									
Seed & aerial application	ac	72	2640	\$190,080		\$0		\$0	\$190,080
Repair pasture fences	mi	8000	1.5	\$12,000		\$0		\$0	\$12,000
Repair Hop Ck fence	mi	4000	1	\$4,000		\$0		\$0	\$4,000
<i>Subtotal Land Treatments</i>				\$206,080		\$0		\$0	\$206,080
<b>B. Channel Treatments</b>									
Repair Hop Ck gully plugs	ea	600	10	\$6,000		\$0		\$0	\$6,000
Stabilize steambanks	ea	500	8	\$4,000		\$0		\$0	\$4,000
				\$0		\$0		\$0	\$0
				\$0		\$0		\$0	\$0
<i>Subtotal Channel Treat.</i>				\$10,000		\$0		\$0	\$10,000
<b>C. Road and Trails</b>									
Evaluate and fell hazard trees	days	565	6	\$3,390		\$0		\$0	\$3,390
Upsize culverts	ea	1100	6	\$6,600		\$0		\$0	\$6,600
				\$0		\$0		\$0	\$0
				\$0		\$0		\$0	\$0
<i>Subtotal Road &amp; Trails</i>				\$9,990		\$0		\$0	\$9,990
<b>D. Structures</b>									
clean stock/sediment ponds	ea	20	1200	\$24,000		\$0		\$0	\$24,000
				\$0		\$0		\$0	\$0
				\$0		\$0		\$0	\$0
				\$0		\$0		\$0	\$0
<i>Subtotal Structures</i>				\$24,000		\$0		\$0	\$24,000
<b>E. BAER Evaluation</b>									
initial assessment	days	601	13	\$7,813	2	\$1,202		\$0	\$9,015
interim report	days	381	15	\$5,715	5	\$1,905		\$0	\$7,620
<b>F. Monitoring</b>									
Implementation and effectiveness	days	295	16	\$4,720		\$0		\$0	\$4,720
<b>G. Totals</b>				<b>\$268,318</b>		<b>\$3,107</b>		<b>\$0</b>	<b>\$271,425</b>

**PART VII - APPROVALS**

/s/ Elaine J. Zieroth

08/02/02

\_\_\_\_\_  
Forest Supervisor (signature)

Date

/s/ Liz Close for

08/07/02

\_\_\_\_\_  
Regional Forester (signature)

Date

## Seed Mix

Common name	Scientific name	Lbs/acre PLS	Erosion Control	Rationale
Slender Wheatgrass	<i>Agropyron trachycaulum</i>	5	Very good	Initial cover good for 1-5 years. Short-lived perennial bunchgrass, moderately drought tolerant, establishes easily and quickly, but is non- aggressive.
ReGreen	<i>Wheat X wheatgrass</i>	4	Excellent	Initial cover good for 1 year. Sterile hybrid cross between common wheat and tall wheatgrass. Germinates and established rapidly but does not persist or reseed.
Blue Bunch Wheatgrass	<i>Agropyron spicatum</i>	4	Good	Secondary cover to occupy sites as initial cover crop diminishes. Drought tolerant, long-lived perennial bunchgrass. <b>Starts growing in early spring with relatively short cycle to maturity and some regrowth in fall.</b>
Blue wildrye	<i>Elymus glaucus</i>	4	Excellent	Secondary cover to occupy sites as initial cover crop diminishes. Perennial bunchgrass widely used in erosion control seedings.