

Date of Report: 10-06-2009

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST**A. Type of Report**

- ☐ 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)
☐ 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: Bridge Fire****B. Fire Number: UT-DIF-090163****C. State: Utah****D. County: Garfield****E. Region: 04 - Intermountain****F. Forest: 07 - Dixie****G. District: 03 - Powell****H. Fire Incident Job Code: P4EZ36 (0407)****I. Date Fire Started: June 15, 2009****J. Date Fire Contained: September 3, 2009****K. Suppression Cost: \$2,000,000 (est.)****L. Fire Suppression Damages Repaired with Suppression Funds**

1. Fireline waterbarred (miles): Approximately 2 miles
2. Fireline seeded (miles): None
3. Other (identify):

M. Watershed Number(s): (6th level hydrologic units, percent of watershed acres within fire perimeter):

HU Number	HU Name	% in Fire	HU Number	HU Name	% in Fire
160300020303	Mud Springs Creek	2.2	140700070201	Upper Sheep Creek	25.6
160300020302	Tropic Reservoir	63.3	140700070202	Willis Creek	8.9

N. Total Acres Burned: 4,759**NFS (2,817) NPS (1,942)**

O. Vegetation Types: On the Dixie NF (2,817 acres)

Vegetation Group	Acres
Aspen	8
Black Sage	81
Mixed Conifer	1,239
Mountain Big Sagebrush / Aspen	2
Pinyon-Juniper	69
Ponderosa Pine	1,394
Sedge / Grass-Forb	24

P. Dominant Soils: The soils are typically 20 to 40 inches deep to bedrock with very gravelly loam soil textures formed from the Claron formation.

Q. Geologic Types: The soils within the Bridge fire were formed in the Claron Formation. This formation is known for red or pink limestone, conglomerate and white dolomite.

R. Miles of Stream Channels by Order or Class: **Perennial: 0.8 miles** **Intermittent: 13.5 miles**

S. Transportation System: **Trails: 0.4 miles** **Roads: 28.3 miles**

PART III - WATERSHED CONDITION

Burn Severity on National Forest Lands (acres): **2,422** (unburned & low) **303** (moderate) **92** (high)

Burn severity (for NPS and USFS Lands) for example microsheds with potential BAER concerns

Microsheds	Severity (acres within Hydrologic Unit)			
	High	Moderate	Low/Unburned	Total
Ingram Hollow	179	236	591	1,006
Long Hollow	29	155	916	1,100

B. Water-Repellent Soil (NFS acres): **167**

C. Soil Erosion Hazard Rating (NFS acres):
300 (low) **1,105** (moderate) **1,412** (high)

D. Erosion Potential: **2.8** average ton/acre (Based on 107 Soil Type Low/Moderate Severity)

E. Sediment Potential: **14,560** cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): **5 to 10**

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

C. Equivalent Design Recurrence Interval, (years): **2 and 5 year events**

D. Design Storm Duration, (hours): **2yr/30 min. and 5yr/24 hour**

E. Design Storm Magnitude, (inches):

- 30 minute 2 yr event - 0.47
- 24 hour 5 yr event – 2.03

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

24 hour/5 year event
Ingram Hollow – 45.9
Long Hollow – 41.8

G. Estimated Reduction in Infiltration, (percent):

25%

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

see table

Microsheds (24 hour/5 year storm)	Design Flow (cfs per square mile)	
	Pre-fire	Post-fire
Ingram Hollow	71.6	117.5
Long Hollow	84.4	109.1

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Summary of Issues:

Human Life and Safety

No immediate threats to human life and safety were identified within this analysis. The primary safety issue is the snag potential in areas of the fire.

Property

Forest roads and trails were analyzed for proper water drainage, at this time no emergency protection is needed.

Numerous fences were destroyed by the fire (14,600 feet of USFS/Bryce Canyon NP boundary fence and 3,500 feet of interior USFS allotment fence). The forest plans on pursuing fire restoration and rehabilitation funding to reconstruct the destroyed interior allotment fences on USFS lands and the NPS is tentatively planning on repairing the 14,600 feet of USFS/Bryce Canyon NP boundary fence with DOI emergency money (\$39,100).

The Tropic Springs (Public Water Source – Culinary) is outside of the topographic drainage bottom it should not be threatened by flood flows.

Critical Natural Resources

Water Quality – Tropic Reservoir will likely see increased sedimentation along with larger spring water flow discharges, but due to the capacity of the reservoir, a significant loss of storage or damage to diversion structures is unlikely.

Fish Habitat - On the Dixie National Forest, the Bridge Fire primarily burned within the upper reaches of the Tropic Reservoir and the Mud Spring Creek-East Fork Sevier River watersheds. A good portion of this area was unburned and the remainder was mostly burned at low to moderate severities. The fire did burn at a high severity at a few places in the highest parts of these watersheds, mostly on National Park Service lands.

Since no fish are present in the drainages directly affected by the fire, the fishery value at risk would be downstream in the East Fork of the Sevier River and Tropic Reservoir. Excessive sediment runoff and erosion during future storm events in the burned area could impact those fisheries. With the exception of the few high severity areas, needle duff and other ground cover was present throughout the burned area. Additionally, the lower reaches of the affected drainages were dominated by unburned meadow habitat which often lacked a defined channel. Rainstorms following the burn within the Long Hollow watershed brought some sediment, ash, and debris down the channel and all the sediment and debris was trapped at the upper end of the unburned meadow. Similarly, channels in the upper portion of Ingram Hollow showed evidence of sediment, ash, and debris transport that never reached the lower meadow in that drainage. The extensive areas of unburned vegetation in the lower portions of these drainages should buffer the East Fork of the Sevier River and Tropic Reservoir from any sediment generated off burned areas higher in the watershed.

One exception to this is a 0.25 mile (0.4 km) section of burned area that extends down to FR 30087 immediately adjacent to the southeast corner of Tropic Reservoir. This area appeared to have mainly low to moderate burn severity. A considerable amount of needles and other duff remained on the ground as cover in this area. Additionally, a small amount of riparian vegetation separates the road and the Reservoir. Some additional sediment may be generated off this area, but is unlikely it will have a significant impact on the fishery in Tropic Reservoir.

While it's possible that some individual amphibians may have been directly impacted by the fire, all recent observations and currently active breeding areas are outside the fire perimeter and upstream from any potential sediment impacts.

The Bridge Fire has resulted in no emergency to fisheries or aquatic biota resource within or near the burned area.

Long-term Soil Productivity – In high and moderate soil burn severity areas the fire completely consumed the vegetation canopy and the effective ground cover that dissipates rainfall and regulates snowmelt runoff. Even with average precipitation, erosion rates will be accelerated in combination with higher surface runoff efficiencies. A 2- or 5-year rainstorm event occurring during the first two years following the fire will greatly increase the potential for loss of topsoil, including the ash from the burned plant litter and duff that also replenish the soil nutrient pool, and reduce the soil productivity of these sites. The potential soil loss due to snowmelt and thunderstorm runoff may jeopardize the natural vegetation recovery.

Natural revegetation to establish vegetative ground cover to protect the soil surface in high and moderate soil burn severity areas will vary but is expected to be within a soil tolerance range that is not excessively outside of natural variation.

If the significant increases of water flow are realized in Ingram Hollow and Long Hollow, initiation of head-cutting, stream incision or deposition will likely be the outcome. In order to maintain a vegetative roughness in these stream bottoms, that is capable of dissipating the energy associated with these increased flows, a moratorium on livestock grazing for at least two spring growing seasons is recommended.

The major concern was for invasives and noxious weed proliferation into the burned area. During this survey, no cheatgrass or other weedy invasives were observed within or near the Bridge Fire burned areas. There appears to be little, if any, seed source for the proliferation of invasives into the Bridge burned areas. Noxious weeds near the fire (as discussed previously) were not burned. These were small and previously treated populations as part of the regular noxious weed management program on the Powell Ranger District. Their spread into the Bridge Fire burned area is unlikely as long as they are regularly monitored and treated as part of the normal weed program on the District. The proliferation of these specific populations of weeds resulted more from their adjacency to the main East Fork Road than from any other factor.

Given the low presence of invasives and noxious weeds, higher elevations, and low road densities where the Bridge Fire burned, it is unlikely that seed source from fire suppression activities have introduced invasives and noxious weeds. If cheatgrass or other invasives enter the burn area, it is expected that they will stay small and isolated at these higher elevations (7,900-8,500 feet elevation) especially on these harsher Tertiary Clarion Limestone-derived substrates.

For all cover types affected, in the short-term, native grasses, dryland sedges, forbs, and shrubs are expected to increase in the burned areas following the fire. Shrub regeneration, especially of snowberry and manzanita will be very quick in the low to moderate burn intensity areas and slower in high burn intensity areas. Aspen regeneration will occur where it was present in the pre-fire condition, however, there didn't appear to be much aspen found in the pre-fire landscape. The Bridge Fire burned area is expected to naturally recover with little threat of invasive or noxious weed plant proliferation without any additional treatment.

There is no emergency situation regarding the threat of invasives and noxious weeds. Seeding is not required to stem off invasive plant encroachment. Regular monitoring of the known populations of noxious weeds near the Bridge Fire should continue as part of the normal weed monitoring program on the District.

B. Emergency Treatment Objectives:

No treatment recommended.

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

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

D. Probability of Treatment Success: N/A

E. Cost of No-Action (Including Loss): N/A

F. Cost of Selected Alternative (Including Loss): N/A

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input checked="" type="checkbox"/> Range
<input checked="" type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS

Team Leader: **Rich Jaros, Forest Soil and Water Program Manager**

Email: **sjaros@fs.fed.us**

Phone: **435-865-3722**

FAX: **435-865-3791**

Team Members:

Rich Jaros, Soil and Water Program Manager, Dixie National Forest

Chris Butler, Hydrologist, Dixie National Forest

Brooke Shakespeare, Hydrologist, Dixie National Forest

Mike Golden, Fisheries Biologist, Dixie National Forest

Mark Madsen, Botanist, Dixie National Forest

Robert Miller, Engineering, Dixie National Forest

Bill Wais, Forestry/Silviculture, Dixie National Forest

Keith Gustafson, Forestry, Dixie National Forest

Matt Lee, GIS Technician, Dixie National Forest
Jake Schoppe, Wildlife Biologist, Dixie National Forest

H. Treatment Narrative: No Treatments Recommended.

I. Monitoring Narrative: No Monitoring Recommended.

Part VI – Emergency Stabilization Treatments and Source of Funds

Initial Request

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands				All Total \$
			# of Units	BAER \$		# of units	Fed \$	# of Units	Non Fed \$	
A. Land Treatments										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Land Treatments</i>				\$0	\$0		\$0		\$0	\$0
B. Channel Treatments										
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Channel Treat.</i>				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Road & Trails</i>				\$0	\$0		\$0		\$0	\$0
D. Protection/Safety										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Structures</i>				\$0	\$0		\$0		\$0	\$0
E. BAER Evaluation										
Assessment Team	Report	5200	1	---	\$5,200		\$0		\$0	\$5,200
<i>Subtotal Evaluation</i>				---	\$5,200		\$0		\$0	\$5,200
F. Monitoring										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Monitoring</i>				\$0	\$0		\$0		\$0	\$0
G. Totals				\$0	\$5,200		\$0		\$0	\$5,200
Previously approved				\$0						
Total for this request				\$0						

Part VI – Emergency Stabilization Treatments and Source of Funds

Initial Request

PART VII - APPROVALS

1. /s/ Robert G. MacWhorter 10/13/2009
Forest Supervisor (signature) Date

2. /s/
Regional Forester (signature) _____ Date _____