

Interim 1 edited J.Bruggink March 23, 2004

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

- ☒ 1. Funding request for estimated WFSU-SULT funds
- ☒ 2. Accomplishment Report
- ☐ 3. No Treatment Recommendation

B. Type of Action

- ☐ 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation 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: Canyon

B. Fire Number: P41961

C. State: ID

D. County: Boise

E. Region: 4

F. Forest: Boise

G. District: Lowman

H. Date Fire Started: August 11, 2003

I. Date Fire Contained: August 23, 2003

J. Suppression Cost: \$5,200,000

K. Fire Suppression Damages Repaired with Suppression Funds

- 1. Fireline waterbarred (miles): 7 miles
- 2. Fireline seeded (miles):
- 3. Other (identify):

L. Watershed Number: 170501200101 and 02

M. Total Acres Burned: 5,545

NFS Acres (5,545) Other Federal (0) State (0) Private (0)

- N. Vegetation Types: Subalpine fir/white bark Pine (above 7,800 feet); Lodgepole and ponderosa pine and Douglas fir (below 7,800 feet).
- O. Dominant Soils: Soils derived from granodiorite bedrock, glacial outwash deposits; Deep Skeletal, Sandy and Loamy soils.
- P. Geologic Types: Quartzmonzonite and granodiorite as part of the Idaho Batholith
- Q. Miles of Stream Channels by Order or Class:
Order 1: 11.8mi. Order 2: 2.1 mi. Order 4: 4.3 mi
- R. Transportation System
Trails: 0 miles Roads: 3.18 miles

PART III - WATERSHED CONDITION

- A. Burn Severity (acres): 3,162 low (57%) 1,040 moderate (19%) 1,343 high (24%)
- B. Water-Repellent Soil (acres): 1,844
- C. Soil Erosion Hazard Rating (acres):
4,985 (low) 474 (moderate) 86 (high)
- D. Erosion Potential: 0.92 tons/acre
- E. Sediment Potential: 96 cubic yards/square mile

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period, (years): 2-5
- B. Design Chance of Success, (percent): 50
- C. Equivalent Design Recurrence Interval, (years): 5
- D. Design Storm Duration, (hours): 0.25
- E. Design Storm Magnitude, (inches): 0.44
- F. Design Flow, (cubic feet / second/ square mile): 8
- G. Estimated Reduction in Infiltration, (percent): 38
- H. Adjusted Design Flow, (cfs per square mile): 11

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Based on the BAER teams' field survey and analysis, the following emergencies exist on federal and private lands. The Canyon Creek Fire started on August 11, 2003, and burned 5,545 acres in the Canyon Creek watershed. The following is a breakdown of values at risk as identified by the BAER team.

Threat to life and property

There is an increased threat of rockfall, culvert plugging debris flows and flooding on Idaho State Highway 21. The high burn severity east of Highway 21 has significantly increased the risk of increased peak flows, mud/debris flow and avalanche hazard coming off this hillslope. This area is steep with direct access to Canyon Creek. Highway 21 is adjacent to the creek.

There is also a risk of culverts plugging on the west side of the road. Burned debris along with rock and sediment can plug culverts. This area is already a maintenance problem as there are many existing avalanche shoots. Enhanced rock fall hazard exists throughout the fire area on the highway.

Threat to Water Quality

Significant threats to water quality are expected in Zumwalt Lake due to increased sedimentation/erosion from changes in post-fire soil hydrologic function and associated vegetation removal. Ash and sediment delivery to Zumwalt Lake could result in deterioration of water quality impacting fish populations. Ash and sediment delivery from high severity burns upslope could reduce the lake depth and volume resulting in fish kills when the lake freezes this winter. Zumwalt Lake supports a self-reproducing population of rainbow/redband trout that spawns in the outlet of Zumwalt Creek.

B. Emergency Treatment Objectives:

- To address the above emergencies identified by the BAER team, the following objectives were identified:
- To mitigate threats to human life and property from rockfall, avalanche, mud/debris flows and flooding along Highway 21.
- Stabilize slopes above and around Zumwalt Lake to protect identified beneficial uses of the lake, including habitat for aquatic biota.
- To provide information to the specifically effected public and various state and local agencies about potential threats.

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

Land	90%	Channel	%	Roads	90%	Other	%
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D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	90	95	100
Channel			
Roads	90	95	100
Other			

E. Cost of No-Action (Including Loss): \$ 446,838

Idaho Transportation Department estimates a quadruple increase in maintenance costs for the next 2-5 years from the effects of the fire.

F. Cost of Selected Alternative (Including Loss): \$291,345

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input type="checkbox"/> Range
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input 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

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Team Members:

Kari Grover Wier, Hydrologist
Sarah Peterson, Hydrologist
Michael Kellett, Fisheries Biologist
Trisha Giambra, Fisheries Biologist
Doug Brown, GIS Specialist
Ty Corn, Archeologist (extended team)
Kay Beal, Botanist (extended team)
Nadine Hergenrider, Wildlife biologist (extended team)
Kristine Vollmer, Fisheries Biologist (extended team)

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.)

The following are proposed emergency treatments for the Canyon Creek Fire. These treatments were developed based on BAER objectives, team recommendations and discussions of proven, effective treatments, and line officer/agency administrator input. Preventative treatments are targeted at areas with risks to property and safety, and ecosystem stability and function. Control treatments are targeted at areas downstream from high and moderate severity areas, as well as sites with high values at risk. Treatments with low probability of success were eliminated by use of a preliminary least cost plus risk analysis to refine treatments.

Land Treatments

1. Natural Vegetative Recovery

Objective: This no cost treatment consists of allowing the onsite vegetative material to sprout or germinate to reduce emergency conditions throughout the fire area.

Methods: Observe natural vegetative recovery during the first growing season.

2a. Straw Mulch / Heli-Mulching

Description: Straw mulch is applied to the ground by helicopter as a continuous cover to replace ground cover lost in the fire.

Location (Suitable) Sites: Slopes above Zumwalt Lake High Severity burns, generally under 60 percent slopes. Refer to Watershed Map and treatment map for exact location.

Design/Construction Specifications:

Straw Mulch Site Selection: Suitable sites are designated on the BAER Watershed Treatment map and in the field by either watershed or operations staff. Treat 220 acres by helicopter mulching. Slopes between 0 to 60 percent, where needle cast is not expected.

Type of straw: Straw must conform to Idaho State Department of Agriculture (ISDA) Certified Noxious Weed Free Standards. Suitable straw includes barley, rice, and wheat grasses. The straw should be dry for easier application.

Application: The rate of application is determined by qualified individuals who have been trained in the principles of BAER treatments. Application rate will be 1.0 ton/acre (2000 pounds) and applied as a continuous cover. This is about 35-40 straw bales per acre, spread one-quarter inch deep, if evenly distributed (approximately three straw shafts deep).

Storage: Straw bales should be delivered early to the staging area. Canvas tarps or plastic covers may be required to keep straw dry from precipitation and condensation.

Special ground support and equipment needs: Straw bales can vary from 50-80 pounds in weight. For small bales a crew of 20 people can be used to load cargo nets.

Purpose of Treatment: The purpose of straw mulch is to stabilize the steep slopes above Zumwalt Lake by replacing the natural ground cover consumed by the fire. In addition to

providing immediate soil protection from erosion and loss of nutrient capital, and the associated sediment deposition in stream channels leading to Zumwalt Lake, mulching also helps reduce downstream peak flows by absorbing and slowly releasing accelerated overland runoff due to bare soil, and hydrophobic (water repellent) soils. Mulching even small areas at the source of floodwaters, and other areas critical to slope stabilization, can often protect much larger downstream areas from the cumulative effects of hill slope runoff. Mulching also helps to secure seeds that are either stored in the soil, that may otherwise be eroded off-site and maintains a favorable moisture and temperature regime for seed germination and growth.

Treatment Effectiveness Monitoring: Visually inspect effectiveness of treatments and repair/retreat as needed to achieve the objectives of this treatment.

2b. Straw Mulch / Heli-Mulching

Description: Straw mulch is applied to the ground by helicopter as a continuous cover to replace ground cover lost in the fire in.

Location (Suitable) Sites: Slopes above Debris Collection Area in Canyon Creek in High Severity burns, generally 40-70 percent slopes. Refer to Watershed Map and treatment map for exact location.

Design/Construction Specifications:

Straw Mulch Site Selection: Suitable sites are designated on the BAER Watershed Treatment map and in the field by either watershed or operations staff. Treat 126 acres by helicopter mulching. Slopes between 40 to 70 percent, where needle cast is not expected.

Type of Straw: Straw must conform to Idaho State Department of Agriculture (ISDA) Certified Noxious Weed Free Standards. Suitable straw includes barley, rice, and wheat grasses. The straw should be dry for easier application. Rice Straw is preferable in this case, research has shown that rice straw sticks better to steep hillslopes. The straw should be chopped to 6-8" pieces for to facilitate dispersion from the nets.

Location: The rate of application is determined by qualified individuals who have been trained in the principles of BAER treatments. Application rate will be 2.0 ton/acre (4000 pounds) and applied as a continuous cover. This is about 70-80 straw bales per acre, spread 1/2-1 inch deep, if evenly distributed.

Storage: Straw bales should be delivered early to the staging area. Canvas tarps or plastic covers may be required to keep straw dry from precipitation and condensation.

Special ground support and equipment needs: Straw bales can vary from 50-80 pounds in weight. For small bales a crew of 20 people can be used to load cargo nets.

Purpose of Treatment: The purpose of straw mulch is to stabilize the steep slopes above in critical areas above Highway 21 by replacing the natural ground cover consumed by the fire. In addition to providing immediate soil protection from erosion and loss of nutrient capital, and the associated sediment deposition in stream channels leading to Canyon Creek, mulching also helps reduce downstream peak flows by absorbing and slowly releasing accelerated overland runoff due to bare soil, and hydrophobic (water repellent) soils. Mulching even small areas at the source of floodwaters, and other areas critical to slope stabilization, can often protect much larger downstream areas from the cumulative effects of hill slope runoff. Mulching also helps to secure seeds that are either

stored in the soil, that may otherwise be eroded off-site and maintains a favorable moisture and temperature regime for seed germination and growth.

Treatment Effectiveness Monitoring: Visually inspect effectiveness of treatments and repair/retreat as needed to achieve the objectives of this treatment.

Channel Treatments

3. Storm Patrol – Canyon Creek

Description: An area of Canyon Creek approximately one-quarter mile downstream of milepost 99.9 is confined by rock outcrop and fillslope of Highway 21. In addition, there are three large boulders in the channel further restricting safe passage of woody materials and debris. The first bridge south of the fire area is on a corner and may collect debris. This site should be checked also.

Location (Suitable) Sites: See above.

Design/Construction Specifications: Observe this site when it is safe during and/or immediately after a runoff producing storm event. Remove woody material and debris if they are restricting flow of canyon creek. This can be done by an excavator or by hand (crew of 2 to 3 people with chainsaws or explosives) depending on the severity of the blockage. Disposal of woody material will be consistent with direction from a Fisheries Biologist.

Purpose of Treatment: To minimize flooding risk to Highway 21 and keep the fill slopes and bridges intact.

Treatment Effectiveness Monitoring: Visually inspect the debris collection area after each runoff-producing storm and take appropriate action to allow water passage.

Roads and Trail Treatments

4. Culvert Cleaning – Idaho Transportation Department

Description: Culverts in areas at risk to flooding and/or debris flows should be cleaned in year 2003 and monitor culverts for additional cleaning needs in 2004 to ensure maximum flow capacity. Remove burned floatable debris from culverts with catch basins.

Subsequent to flood events culverts should be inspected and if necessary re-cleaned.

Location (Suitable) Sites: Highway 21 – 33 culverts over 3.18 miles. See Culvert report for details on each culvert, condition and whether floatable debris should be removed.

Design/Construction Specifications: Mechanically shovel and flush debris from culverts and place outside of channel where it cannot re-enter stream channels. Use backhoe and dump truck to remove debris and fill from channel and around culvert. Use water tender and/or fire engine to flush any debris out of culverts. Manually remove woody debris around catchbasin and in channel upstream from culvert. ITD has the work scheduled for completion this fall.

Purpose of Treatment: To maximize culvert and channel capacity to handle flood flows and protect roads.

Treatment Effectiveness Monitoring: Visually inspect each culvert in flood prone areas subsequent to major rain events and clean those blocked.

5. Culvert Replacement

Description: Replace one (1) culvert on an unnamed perennial tributary on the west side of Canyon Creek at milepost 98. Construction of bottomless arch will provide passage of all life stages of bull trout at all times. It also provides refugia for bull trout to disperse quickly during debris flow/flooding events within and downstream from the burned area. This tributary was not burned and will provide high water quality in the event of high sediment transport in Canyon Creek. The Forest Service will continue to work with ITD to identify funding to replace this culvert.

Location (Suitable) Sites: See above.

Design/Construction Specifications: Forest Service Specifications for construction of Roads and Bridges.

Purpose of Treatment: It is recommended for the conservation of listed bull trout in the Canyon Creek LPW, because it will provide connectivity to suitable dispersal habitat for bull trout displaced by the Canyon Creek Fire.

Treatment Effectiveness Monitoring: Visually inspect the culvert in after storm events and during fisheries surveys.

6. Hazard Advisory Signs

Description: Hazard advisory signs are needed to inform motorists they are entering a burned area and to proceed with extra caution.

Location (Suitable) Sites: Highway 21 (both gate closures) and a site designated by ITD.

Design/Construction Specifications: Two 4'x6' reflective white signs with red letters attached to two pressure treated posts, above and below the fire area on Highway 21.

Purpose of Treatment: The objective is to advise road users of safety hazards associated with the road.

Treatment Effectiveness Monitoring: Following flood or avalanche events determine if signs work effectively in keeping the public out risk areas.

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.)

7. Cultural Resources Monitoring and Consultation

Description: Monitoring and consultation will be conducted by Boise National Forest Heritage Program personnel (2 crew members x 15 days) during implementation. An archaeologist will also monitor BAER treatments at locations other than known archaeological sites.

Location: Personnel will monitor and consult with crew leaders during implementation of proposed BAER treatments throughout the entire burn area. Priority will be given to those areas where archaeological site locations are more likely to be present.

Design/Construction Specifications: Only cultural resources monitoring and consultation will be conducted. No design or construction specifications are necessary.

Purpose of Treatment: The purpose of the cultural resources monitoring and consultation is to help Boise National Forest Heritage Program personnel meet federal legal requirements with regards to cultural resources. In addition, consultation with crews and

crew leaders will be used to educate and inform them of the possible presence of cultural resources that may exist within the specific BAER treatment implementation areas.

Treatment Effectiveness Monitoring: A report will be produced that documents to the Idaho State Historic Preservation Office (SHPO) the results of the cultural resources monitoring and consultation (i.e., if new cultural resources are identified and the significance of any cultural resources encountered).

Part VI – EMERGENCY REHABILITATION TREATMENTS AND SOURCE OF FUNDS BY LANDOWNERSHIP

			NFS Lands				Other Lands			All
		Unit	# of	WFSU	Other		# of	Fed	# of	Non Fed
Line Items	Units	Cost	Units	SULT \$	\$		units	\$	Units	\$
A. Land Treatments										
Straw Mulching	ac	830	220	\$182,600						\$182,600
Straw Mulching	ac	1481	126	\$186,606						\$186,606
Subtotal Land Treatments				\$369,206				\$0		\$0
B. Channel Treatments										
Storm Patrol	ea	2494	5							
(not authorized, will submit interim request as needed)										
Subtotal Channel Treat.				\$0				\$0		\$0
C. Road and Trails										
Culvert Cleaning	ea	138							33	\$4,554
Culvert Replacement	ea	36944							1	\$36,944
Warning Signs	ea	314	2	\$628						\$628
Subtotal Road & Trails				\$628				\$0		\$41,498
D. Structures										
Subtotal Structures				\$0				\$0		\$0
E. BAER Evaluation										
Wages				\$15,000						\$15,000
Travel, vehicle				\$400						\$400
Subtotal Evaluation				\$15,400				\$0		\$0
F. Monitoring										
Cultral Monitoring										
Subtotal Monitoring				\$0				\$0		\$0
G. Totals				\$385,234				\$0		\$41,498
										\$426,732

PART VII - APPROVALS

1. /s/ Richard A. Smith March ~~XX~~15, 2004
Forest Supervisor (signature) Date

2. /s/ William P. LeVere for April 7, 2004
Regional Forester (signature) Date

FY 2003 Interim Accomplishment Report - Canyon Fire BAER

The following table and narrative summarize the FY 2003 accomplishments and estimated costs for implementing BAER treatments on NFS lands burned in the Canyon Fire BAER.

Canyon Fire - BAER Cost Summary			
[period ending October 31, 2003]	Authorized	Expended	Balance
Land Treatments			
Straw Mulching	\$120,340	\$182,651	-\$62,311
Straw Mulching	\$126,000	\$182,652	-\$56,652
Channel Treatments			
Storm Patrol	\$0	\$0	\$0
Road and Trails			
Warning Signs	\$628	\$0	\$628
Structures			
BAER Evaluation			
Wages	\$15,000	\$15,000	\$0
Travel, vehicle	\$400	\$400	\$0
Monitoring			
Cultural Resources Monitoring	\$4,420	\$0	\$4,420
Total	\$266,788	\$380,703	-\$113,915

The aerial straw mulch treatment was completed on all 346 acres identified in the initial 2500-8 funding request. This task was completed on approximately October 11, 2003. A significant change in the implementation was relocating the landing/staging area to support the cargo net loading. The original location created adverse lift conditions for the helicopter, resulting in safety concerns for the operation. To resolve this issue the staging area was moved. The closest, suitable site doubled the flight time for a single trip and increased the estimated cost for this activity by about \$108,580.

Implementation monitoring of the aerial straw mulch treatment was conducted by Leonard Roeber, Implementation Team Leader. Monitoring was conducted on three different projects: Canyon Fire, Hot Creek Fire, and South Fork Fire. The results of this monitoring will provide some "Lessons Learned" relative to obtaining materials, working with contractors, differences between contract helicopters and existing forest contracts, and the straw (bale size, species, chop specifications, etc.).

Highway hazard warning signs have been ordered. In the spring, after the winter avalanche period, the signs will be placed along burned canyon corridor of Highway 21. An initial Storm Patrol to identify potential culvert cleaning will be conducted as part of an annual spring road inspection. Funding to clean out high priority culvert catchment basins will be requested as necessary.

Cultural Resource monitoring was originally identified in the initial funding request. This monitoring activity was to accomplish two objectives: (1) evaluate the protection/impact of cultural sites during implementation of treatments, and (2) evaluate the effectiveness of treatments for protection of cultural sites. It was later decided that implementing the aerial straw mulch treatments would not affect the conditions of the cultural sites within the treatment blocks. It was also determined that the character of the cultural sites was such that protection was not required. Based on these determinations, this monitoring activity would not be conducted.