

Date of Report: 7/29/03

Revised: 11/14/03

Revised: 12/10/03

**BURNED-AREA REPORT**

(Reference FSH 2509.13)

**PART I - TYPE OF REQUEST**

The information in this initial burned area report is based on field reviews conducted by the BAER Team and information provided by Resource Advisors assigned to the Tobias Fire. The BAER Team was able to access much of the burned area by roads and on foot after the fire was 98 percent contained and turned over to the command of a Type III team, on the morning of July 23, 2003.

~~The Forest Fire Ecologist is recommending that the Forest contract with the EROS Data Center to get satellite imagery to more accurately map fire severity. (An electronic message from the the Forest Fire Ecologist is attached.) A decision regarding this matter is requested from the Forest Supervisor.~~

The treatment narratives in this report apply only to Forest Service lands. In a meeting on July 28, 2003, the BLM Assistant Field Manager made the decision to request separate funding for treatments on BLM land. In addition to emergency stabilization, BLM plans to request funding for treatments such as fencing, range riders, and out-year weed spraying that would not be approved under new BAER direction.

This interim report describes the emergency watershed stabilization treatments accomplished to date, treatments and monitoring to be implemented in calendar year 2004, and adjusted costs for the Tobias Fire Burned Area Emergency Response Plan. Also included is a new funding request for a range rider for four months from mid-June through mid-September 2004.

Strikethrough text is narrative that is no longer applicable. Narrative and costs highlighted in red reflect new or updated information. Narrative highlighted in blue reflect revisions to this first interim report based on recommendations from the Regional BAER Coordinator.

**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: Tobias FireB. Fire Number: ID-SCF-009

C. State: ID D. County: Lemhi  
E. Region: 04 F. Forest: Salmon-Challis  
G. District: Leadore  
H. Date Fire Started: July 12, 2003 I. Date Fire Controlled: July 23, 2003 (at 0600 command transferred to a Type III team.)  
J. Suppression Cost: \$4,416,563 (as of July 26, 2003)  
K. Fire Suppression Damages Repaired with Suppression Funds  
1. Fireline waterbarred (miles): 6.2 miles  
2. Fireline seeded (miles): None planned  
3. Other (identify): helispots  
L. Watershed Number: 170602040604 170602040702 170602040703 170602040704  
M. Total Acres Burned: 13,845 (The IAP states the fire was contained at 13,485 acres. Based on GIS information the correct figure is 13,845 acres. This is probably a typographic error.)  
NFS Acres (8,038) Other Federal (BLM 4,573) State (49) Private (1,185)  
N. Vegetation Types: PSME/CAGE, PSME/ARCO, POTR, PICO/VASC, ARTRV/FEID, ARTRW/AGSP  
O. Dominant Soils: Typic Cryoborolls, loamy-skeletal, mixed  
Typic Cryumbrepts, loamy-skeletal mixed  
Argic Cryoborolls, clayey-skeletal, montmorillonitic  
P. Geologic Types: Quartzites, Volcanics  
Q. Miles of Stream Channels by Order or Class: 32.79 miles of perennial streams (includes FS and BLM)  
8.67 miles of intermittent ditches (includes FS and BLM)  
R. Transportation System  
Trails: 0 miles Roads: 17.2 miles FS roads 6.3 miles BLM roads

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

A. Burn Severity (acres) <sup>1</sup>[Fire intensity (not burn severity) was mapped according site indicators and fire intensity classes described in FSH 2509.13 Burned-Area Emergency Response Handbook, Sections 23.31-23.32b and FSM 4300.]

Forest Service lands: 3,656 acres (low) 2,088 acres (moderate) 1,183 acres (high) 768 acres (unburned)  
BLM lands: 2,128 acres (low) 1,006 acres (moderate) 1,144 acres (high) 295 acres (unburned)  
State lands: 49 acres (low) 0 acres (moderate) 0 acres (high)  
Private lands: 819 acres (low) 45 acres (moderate) 251 acres (high) 70 acres (unburned)

B. Water-Repellent Soil (acres): <100 acres (estimated) <sup>2</sup>

C. Soil Erosion Hazard Rating (acres):  
(not calculated as of 7/30/03)      (low)      (moderate)      (high)

D. Erosion Potential: 4.6 tons/acre – calculated using Disturbed WEPP erosion model on high fire intensity area above Haydon Creek on Landtype Q120bs.

E. Sediment Potential: 2355 cubic yards / square mile

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

A. Estimated Vegetative Recovery Period, (years):	<u>2 – range lands</u> <u>5 – forest lands</u> <u>20 - streams</u>
B. Design Chance of Success, (percent):	<u>80%</u>
C. Equivalent Design Recurrence Interval, (years):	<u>10 – range lands</u> <u>25 – forest lands</u> <u>100 - streams</u>
D. Design Storm Duration, (hours):	<u>0.5 – range lands</u> <u>24 – forest lands</u> <u>snowmelt peak - streams</u>
E. Design Storm Magnitude, (inches):	<u>0.9 – range lands</u> <u>2.6 – forest lands</u> <u>snowmelt peak - streams</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>4 to 16 depending on recurrence interval of snowmelt peak</u>
G. Estimated Reduction in Infiltration, (percent):	<u>15</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>4.6 to 18.4</u>

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

A: Describe Watershed Emergency:

The information in this report is based on field observations made by the BAER Team on July 23, 24, and 29, 2003 and from information provided to the team from resource advisors assigned to the fire from July 12 to July 26, 2003. The threats identified apply to Forest System, BLM, State and private lands.

##### **Threats to Life and Property**

Field reviews within and downstream of the burn confirm there is property, but not life, threatened by effects of the fire. The properties at risk are:

- Irrigation ditches - About six miles of ditches (2<sup>1</sup>/<sub>4</sub> miles on FS land and about 4 miles on BLM land) on an extremely steep slope along the east side of Hayden Creek are threatened by increased runoff and debris that are expected as a result of the fire. Slope gradient is 55 to 70 percent. These ditches have had many past failures because of unstable slopes, erosive soils (on BLM lands), and inadequate design features. Several ranches on lower Hayden Creek rely on water conveyed through these ditches to irrigate hay for winter livestock feed.

- About one-half mile of Forest Service Road 010 is threatened in the vicinity of Zeph and Swartz creeks. High fire intensity in these areas is expected to increase the potential for debris flows in the channels, and dry ravel and sloughing from steep slopes above the road.

### Threats to Water Quality

Field reviews within the burned area confirm that water quality is threatened by effects of the fire. The primary concern is that sediment may bury spawning gravels and fill pool habitat in Hayden Creek and the East Fork Hayden Creek, both of which are critical to the recovery of chinook salmon, steelhead trout and bull trout.<sup>3</sup> It is anticipated that sediment delivery from adjacent high and moderate intensity burn areas will enter these streams either directly from perennial, intermittent or ephemeral drainages or this runoff will fill upslope irrigation ditches resulting in ditch failure and mass soil movement directly into Hayden Creek.<sup>4</sup>

### Threats to Long-term Soil Productivity and Ecosystem Integrity

Field reviews confirm that threats to long-term soil productivity and ecosystem integrity exist within the burned area. Erosion rates are expected to increase in areas that experienced high fire intensity, resulting in long-term impacts to soil quality.

The pre-fire erosion rate for Landtype Q120bs above the irrigation ditches along Hayden Creek is calculated at 0.0 ton per acre (using the Disturbed WEPP model). The slope is 60 percent and the inherent erosion hazard is moderate for this landtype. This slope would be stable if the ditch was not present. The first year following the fire the erosion rate is expected to increase to 4.6 tons per acre using the Disturbed WEPP model. Erosion rates on slopes with high fire intensity in Zeph and Swartz creeks are expected to be similar. (Accuracy of model results is +/- 50 percent.)

### Threats to Heritage Resources

Heritage resources within the fire perimeter are located in unburned areas. The potential for damage from increased erosion and sedimentation from the fire is low.

#### B. Emergency Treatment Goals Objectives:

- Minimize the risk of a ditch failure and the potential for mass failure in the ditch system above Hayden Creek and East Fork Hayden Creek.
- Minimize fire effects to threatened species (chinook salmon, steelhead and bull trout) by reducing sediment delivery to streams.
- Minimize fire effects on the transportation system by restoring and improving drainage on roads, removing dry ravel and debris flow materials that accumulate on roads, and cleaning culverts and debris jams that could divert flows on to roads.
- Reduce erosion and loss of long-term soil productivity on steep slopes that experienced high fire intensity.

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

Land 85 % Channel 85 % Roads 85 % Other     % (A flash flood warning was in effect for Lemhi County on the afternoon of July 26, 2003. The lower Panther Creek area of the Forest received high-intensity thunderstorms and numerous mudslides closed the Panther Creek and Salmon River roads. However, no damage was reported within the Tobias Fire perimeter.)

#### D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
<b>Land</b>			
Contour Felling	80	85	90
<b>Channel (from ditch)</b>			
Debris removal	80	90	90
Dead tree removal	80	90	90
Cleaning sediments	80	--	--
<b>Roads</b>			
Culvert /ditch cleaning	80	--	--

E. Cost of No-Action (Including Loss):\_ \$2,200,000

F. Cost of Selected Alternative (Including Loss):\_ \$449,179

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Karen Gallogly, Soil Scientist

Email: kgallogly@fs.fed.us

Phone: (208) 756-5103

FAX: (208) 756-5151

#### H. Treatment Narrative:

The following treatments are proposed to mitigate the threats to property; critical habitat for chinook salmon, steelhead trout and bull trout; and loss of long-term soil productivity.

##### Land Treatments:

Contour fall about ~~4~~ **1** acre of burned trees (in the high intensity fire area) above FS Road 010 in the Swartz Creek drainage to minimize erosion and reduce the potential for sloughing and debris flows of materials onto road. **This was accomplished in October 2003 (FY 2004).**

Contour fall about ~~2 acres~~ **1 acre** of burned trees (in the high intensity fire area) above FS Road 010 in the Zeph Creek drainage to minimize erosion and reduce the potential for sloughing and debris flows of materials onto road. **This was accomplished in October 2003 (FY 2004).**

**The Leadore Ranger District is requesting funds for one range rider for ~~four months~~ approximately two months from June 1, 2004 to July 23, 2004. The objective of having a rider is to ~~replace the need for~~ install and maintain temporary fences and to retrieve cows that get into burned areas.**

BAER funding is requested for materials for two temporary electric fences, one will be approximately 6,450 feet in length and the other will be about 7,500 feet. This would allow livestock control in the Payne/Ford and Tobias/Mogg units of the Upper Hayden Allotment. Only a portion of these two units were burned during the Tobias Fire. Estimated cost for materials is \$6,700.

#### Channel Treatments:

Remove floatable debris on a weekly basis from 2<sup>1</sup>/<sub>4</sub> miles of irrigation ditch on Forest System lands in Sections 26 and 34 T. 17N. R. 23E and after any storm event until the end of the irrigation season.

Cut any fire-killed trees along both sides of the 2<sup>1</sup>/<sub>4</sub> miles of ditch on Forest Service land this fall. This treatment is intended to remove potential debris on the upslope side of the ditch and to remove dead trees on the downslope side of the ditch that could tip over and cause a breach in the ditch. Treatments would total three acres. **This was accomplished in October 2003 (FY 2004).**

Clean excess sediments from the 2<sup>1</sup>/<sub>4</sub> miles of ditch in the spring of 2004.

#### Roads Treatments:

Clean culverts in Swartz, Zeph, and Patterson creeks after any significant rainfall events this fall and again the spring to clear out any burned debris that could plug the culvert and cause it to fail. Clear debris from drainage ditch this fall and again in the spring. **Culverts and ditches were monitored once in September 2003.**

#### Structures:

No emergency structures are proposed at this time.

### **I. Monitoring Narrative:**

The following is a brief narrative of proposed monitoring. ~~A detailed monitoring plan will be developed and submitted to the Regional BAER Coordinator for review.~~ **Effectiveness monitoring of the applied treatments will be conducted during the summer of 2004 after snowmelt runoff.**

#### Contour Felling Implementation and Effectiveness Monitoring:

The BAER Implementation Team Leader will direct the application of the treatment to ensure that logs are properly installed along burned slopes to effectively minimize erosion and reduce potential threats to Forest Road 010. **Implementation monitoring was accomplished in October 2003 (FY 04).** The effectiveness of the treatment will be evaluated after storm events during the summer and fall of 2003 and again in the spring of 2004.

#### Floatable Debris and Dead Tree Removal Implementation and Effectiveness Monitoring:

Presently, Idaho Fish and Game (IDFG) has been removing floatable debris from irrigation ditches above Hayden Creek and monitoring for failures, because spawning chinook are present in Hayden Creek. A plan to continue removing debris and monitoring for ditch failures will be developed with the ditch owner, BLM, FS and IDFG. The BAER Implementation Team Leader will direct the cutting of fire-killed trees along both the uphill and downhill sides of the ditch on Forest System lands. **Implementation monitoring was accomplished in October 2003 (FY 04).**

The Forest Hydrologist will monitor the condition of the ditch (on FS lands) this fall after the water is turned off to determine if any repairs are necessary. **This was accomplished in October 2003 (FY 2004).**

The ditch will be monitored again next spring before the water is turned on to ensure that excess sediments and debris are not plugging the ditch and that it is in good working order.

### Road Treatments

The Forest Service Road crew or available district personnel will monitor the condition of culverts on FS Road 010 in Swartz, Zeph, and Patterson creeks drainages after storm events this summer and fall. **This was accomplished in September 2003 (FY 2003).** Debris plugging the culverts and associated drainage ditches will be removed. The road and culverts will be monitored again in the late spring of 2004 after snowmelt runoff.

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

Line Items	Units	Unit Cost	# of Units	WFSU SULT \$	Other \$	# of units	Fed \$	# of Units	Non Fed \$	Total \$
<b>A. Land Treatments</b>										
				\$0			\$0		\$0	\$0
Contour felling	acres	\$250	2	\$500			\$0			\$500
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
<i>Subtotal Land Treatments</i>				\$500			\$0		\$0	\$500
<b>B. Channel Treatments</b>										
remove flutable debris	miles	\$350	2.25	\$788			\$0		\$0	\$788
remove fire-killed trees	miles	\$325	4.5	\$1,463			\$0		\$0	\$1,436
monitor ditch	days	\$250	4	\$1,000			\$0		\$0	\$1,000
ditch cleaning	miles	\$500	2.25	\$1,125			\$0		\$0	\$1,125
<i>Subtotal Channel Treat.</i>				\$4,376			\$0		\$0	\$4,376
<b>C. Road and Trails</b>										
				\$0			\$0		\$0	\$0
clean culverts/ditches	each	\$429	4	\$1,716			\$0		\$0	\$1,716
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
<i>Subtotal Road &amp; Trails</i>				\$1,716			\$0		\$0	\$1,716
<b>D. Structures</b>										
				\$0			\$0		\$0	\$0
Range Rider	week	\$805	8	\$6,440			\$0		\$0	\$6,440
Temp. elec. fence	miles	\$2,535	2.64	\$6,692			\$0		\$0	\$6,692
				\$0			\$0		\$0	\$0
<i>Subtotal Structures</i>				\$13,132			\$0		\$0	\$13,132
<b>E. BAER Evaluation</b>										
salary, travel to date				\$5,000			\$0		\$0	\$5,000
implementatation (est.)				\$1,000			\$0		\$0	\$1,000
Monitoring Cost (est.)				\$1,000			\$0		\$0	\$1,000
<b>H. Totals</b>				<b>\$26,724</b>			<b>\$0</b>		<b>\$0</b>	<b>\$26,724</b>

(\$1,963 spent so far in 2004 for removing fire-killed trees and contour felling.)

### **PART VII - APPROVALS**

1. /s/Karryl Krieger for  
LESLEY W. THOMPSON  
Acting Forest Supervisor (signature)

Jan. 06, 2004  
Date

2. /s/ William P. LeVere for  
Regional Forester (signature)

January 9, 2004  
Date

### Footnotes

<sup>1</sup> Fire intensity was mapped according site indicators and fire intensity classes described FSH 2509.13 Burned-Area Emergency Response Handbook, Sections 23-31-23.32b, and FSM 4300.

<sup>2</sup> Two types of water repellency can occur. The first type is due to high surface tension in very dry fine soil pores. This condition commonly develops during drought conditions. The second type, more commonly known as hydrophobicity, is due to waxes released from volatilized organic matter that moves downward into the soil and condenses around individual soil particles to form a layer that restricts water movement. Site conditions conducive to this type of repellency include high burn severity, long fire residence time, deep duff and litter layers consumed by the fire, and coarse-grained soils. Water repellency observed on the Tobias Fire is due to high surface tension, not to the release of waxes by volatilized organic matter. Water repellent conditions are expected to break down as the burned area receives higher humidity, rain, and snow. Conditions are expected to mitigate during snowmelt in the spring of 2004.

<sup>3</sup> The Hayden Creek watershed is one of only a handful of Lemhi River tributaries to reach the Lemhi yearround, and is one of the largest tributaries in the valley. As such, it is a significant contributor of cold, clean water to the Lemhi River. It is also the only tributary to be currently occupied by Snake River spring/summer chinook salmon and is also occupied by Snake River steelhead trout and bull trout, all three of which are listed under the Endangered Species Act as Threatened. The entire Lemhi Valley has been designated as critical habitat for the Snake River spring/summer chinook salmon by NOAA Fisheries. Hayden Creek and the East Fork Hayden Creek are proposed for designation as critical habitat for bull trout by the USFWS. It is also occupied by Westslope cutthroat trout, a USDI Bureau of Land Management State of Idaho and USDA Forest Service Region 4 sensitive species, as well as resident rainbow trout and Mountain whitefish.

<sup>4</sup> On July 21, 2003, while the fire was still being actively suppressed, a pipe on the East Fork ditch plugged with debris rolling off the burned slope. Before the ditch intake could be closed, the water overflowed, running downslope into the uppermost Hayden Creek ditch (H11). Slope failure resulted in a blockage of the H11 ditch, causing it to fail and dump sediment directly into Hayden Creek. Idaho Fish and Game salvaged many of the resident and anadromous fish trapped in the canal between the intake and fish screen, but some fish were lost as water levels dropped and temperatures warmed.