

Date of Report: 7/15/05

BLUE SPRING 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: Blue Spring

B. Fire Number: P4BV8Z

C. State: Utah

D. County: Washington

E. Region: Intermountain

F. Forest: Dixie

G. District: Pine Valley

H. Date Fire Started: June 25, 2005

I. Date Fire Contained: July 4, 2005

J. Suppression Cost: \$3,500,000

K. Fire Suppression Damages Repaired with Suppression Funds

- 1. Fireline waterbarred (miles): 3.5
- 2. Fireline seeded (miles): 0

L. Watershed Number: Wet Sandy-Ash Creek 150100080405, Ash Creek Reservoir-Ash Creek 150100080404, North Ash Creek 150100080403, Grapevine Wash-Virgin River 150100080903.

M. Total Acres Burned: 12,286

NFS Acres(7,548) BLM (2,783) State (1,447) Private (508)

N. Vegetation Types: Pinyon-Juniper with mixed shrubs.

O. Dominant Soils: The soil are dominated by shallow soils with 50 percent or more rock fragments intermixed with rock outcrop.

P. Geologic Types: Monzonite porphyry, Navajo sandstone and Carmel formation.

Q. Miles of Stream Channels by Order: 30.5 miles of Order 1, 10.5 miles of Order 2, 13.6 miles of Order 3 and 1.8 miles of Order 4.

R. Transportation System

Trails: 1.3 miles Roads: 24.4 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 4,357 (low and unburned) 7,842 (moderate) 87 (high)

B. Water-Repellent Soil (acres): 22

C. Soil Erosion Hazard Rating (acres):
5,274 (low) 5,801 (moderate) 1,211 (high)

D. Erosion Potential: 2.04 tons/acre

E. Sediment Potential: 240.3 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3-5

B. Design Chance of Success, (percent):

C. Equivalent Design Recurrence Interval, (years):

D. Design Storm Duration, (hours):

E. Design Storm Magnitude, (inches):

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

G. Estimated Reduction in Infiltration, (percent):

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

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Threats to Property and Human Life:

Threats to Human Life

2.5 miles of fence line on the forest boundary/adjacent state land within the fire perimeter has been damaged from the fire. The state land is currently used for rodeo stock grazing with very aggressive animals on adjacent lands. A new 4 wire fence will be needed to protect the forest lands from the stock entering and endangering forest visitors and also slowing vegetative recovery. Currently this treatment is being addressed with SITLA to determine if they can fund this with their emergency stabilization program.

Threats to Road Infrastructure

Road drainage was evaluated on Forest Road 036, 037, 929 and 930 to determine if they can function with anticipated increased flows. 12 culverts will need to be increased in size and installed and 35 rolling dips re-enforced for anticipated post fire hydrologic events associated with the BAER effort.

Threats to Unacceptable Resource Degradation:

ATV encroachment and other off road travel is a concern to resource degradation; it is recommended that 1.5 miles of 3 wire fence barrier and signs be placed along critical resource areas along the Browse Road (300037) to prevent unacceptable degradation to sand dunes and archeological sites contained within the dune topography and also protect these areas from further wind erosion and exposure of cultural resource sites. The barrier would keep ATV traffic away from these sensitive resources and signage would help educate and notify forest users of potential excessive degradation to burned watersheds.

ATV barriers and cultural resource protection is needed on 2.7 miles of forest boundary adjacent to private land. It is recommended that 5 barriers (rock or short fence segments) and signs be placed along this critical resource area to prevent unacceptable degradation from unimpeded ATV traffic and protection of archeological sites and pioneer graves. The barrier used would keep ATV traffic away from these sensitive resources and signage would help educate and notify forest users of potential excessive degradation to burned watersheds.

The vegetative recovery of the Blue Spring fire is currently at risk along 6.2 miles of boundary between NFS and BLM. The NFS lands adjacent to BLM property have had their allotments retired but the BLM allotments are active. The threat of slow vegetative recovery on NFS lands with no barriers to prevent grazing on NFS land will restrict recovery on these burned watershed. It is recommended that 6.2 miles of temporary fence be built on the boundary to prevent the over utilization of the initial vegetative recovery. Currently this treatment is being addressed with the BLM to determine if they can fund this with their emergency stabilization program.

Threats of Noxious Weeds and Invasive Plant Invasion:

To determine the need for future treatments, monitoring will be conducted to document if increased noxious weed invasion is occurring within the wildfire perimeter. During the fire suppression activities fire transportation equipment and engines utilized areas near New Harmony where noxious weeds are present. Also, known sites of noxious weeds are currently found within the fire perimeter. Monitoring will begin in fiscal year 2006.

To prevent invasive plant invasion from cheat grass; 800 acres have been identified for seeding associated with the BAER effort. See attached Hawkins Fire BAER aerial seeding report for reference that documents success on the Dixie NF in slowing cheatgrass expansion.

B. Emergency Treatment Objectives:

The primary purpose of the proposed emergency rehabilitation is to take prompt actions deemed reasonable and necessary to effectively protect, reduce or minimize significant threats to unacceptable resource degradation, property and human life and noxious weeds and invasive plants. The emergency treatments being recommended by the Blue Spring BAER Team are specifically designed to achieve the following results.

- 1) Provide for public safety (road and flood hazard identification) and promote fire recovery by communicating the post fire hazards to the public.
- 2) Limit colonization and/or expansion of noxious weeds and invasive plants species onto National Forest System lands.
- 3) Reduce the impacts to cultural resources and soils subject to high wind erosion hazards to prevent significant resource damage from ATV and off road travel.
- 4) To assist in the natural vegetative recovery of burned watersheds.

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

Land 65 % Channel % Roads 85 % Other %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	70%	75%	75%
Roads	90%	95%	95%

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

Value at Risk	Estimated Cost
Health/Safety Risk from wild/rodeo livestock	\$500,000
Cultural Resource/Wind Erosion damage	\$200,000
Damage to Roads	\$200,000
Invasive Plant Encroachment	\$300,000
Noxious Weed Encroachment	\$754,800
ATV damage to Watershed (rutting, vegetative trampling)	\$750,000
Total	\$2,704,800

F. Cost of Selected Alternative: (Including Loss) The treatment of the rolling dips and culvert drainage improvements has a 25% chance of failure from slow implementation or exceedingly high precipitation; The estimated possible loss would be \$50,000 for supplemental road repair plus the treatment cost of \$31,407. The signage to prevent potential ATV damage is estimated at 90% effective in deterring use on burned landscape. This would possibly expose 500 accessible acres of to rutting, compaction and vegetative trampling with a cost of \$500/acre to repair the damage. The potential total cost of ATV damage would be \$250,000 from damages plus \$1,500 for signage and \$5,000 for ATV barriers. The noxious weed monitoring detects typically 70% of the initial weed locations; 30% of the burned areas has a potential of weed expansion. Typically it cost \$100 an acre to treat noxious weeds and for the 2264 acres at risk (7,548 acres with 30% potential of noxious weed expansion) would potentially cost \$226,400 plus \$2,100 for monitoring. The treatment to prevent effects to highly wind erosive material and cultural resources is estimated to be 85% effective in prohibiting off-road trafficking of these sensitive resources. At 15% failure rate, \$30,000 of excessive erosion rehabilitation cost and archeological work is included within loss of the selected alternative plus the \$12,000 for fence installation. Invasive cheatgrass prevention seeding is estimated to be 65% effective, \$105,000 (35% of \$300,000) is added as included loss for seeding failure plus \$80,000 costs associated within this seeding treatment.

Treatments/Monitoring Selected	Estimated Cost
Prevention of cheatgrass/watershed cover enhancement in Pinyon/Juniper areas (Aerial Broadcast Seeding/Raking)	\$185,000
Culvert Replacement and Rolling Dip Road Drainage Improvements	\$81,407
Cutural Resource and Highly Wind Erodible Dune Protection	\$42,000
ATV signage/barriers for prevention of resource damage	\$256,500
Noxious Weed Monitoring	\$228,500
Total	\$793,407

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 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 checked="" type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS

Team Leader: Richard Jaros

H. Treatment Narrative:

Emergency Seeding of Burned Pinyon-Juniper sites

Burned pinyon-juniper areas necessitate treatment as watershed emergencies; the sparse under-story before the fire, combined with past evidence of cheatgrass in the area makes these areas susceptible to unacceptable resource degradation. The lack of a viable seed bank also makes these zones more vulnerable to invasive plants, such as cheatgrass, which threatens ecosystem structure and function. Our analysis shows that sites that are the most favorable for invasive cheatgrass growth are on south slopes up to 45 percent, and all other aspects up to 20 percent. We have focused our 800-acre seeding site on these parameters. After the Magotsu Fire in 1996, seeding of similar grasses as proposed was successful; cheatgrass was also impeded in the reseeded areas. Following the Hawkins fire in 2004, seeding of similar species shows success in providing grass species diversity and resistance to a complete cheatgrass under story. See attached Hawkins Fire BAER aerial seeding report for reference that documents success on the Dixie NF in slowing cheatgrass expansion.

This seeding is proposed for immediate application. (Late summer/early fall 2005)

Proposed Seed Mix (Target Rate 15 lbs/acre – 222 seeds per square foot)

Species	% of mix	Estimated Seed per Pound	Estimated Cost per pound	Acres	Estimated Cost per Acres for Seed	Estimated Cost per species for 800 acres
Western Wheatgrass	33% (5 lbs)	110,000	\$6.00	800	\$30.00	\$24,000
Sandburg bluegrass	20% (3 lbs)	925,000	\$6.00	800	\$18.00	\$14,400
Sand Dropseed	7% (1 lbs)	5,200,000	\$6.00	800	\$6.00	\$4,800
Indian Ricegrass	20% (3 lbs)	191,000	\$4.50	800	\$13.50	\$10,800
Bottlebrush Squirreltail	20% (3 lbs)	191,000	\$4.50	800	\$13.50	\$10,800
Total	100% (15 lbs)			800	\$81.00	\$64,000

Roads and Trail Treatments:

Off-Road (ATV) encroachment and other off road travel is a concern in this area. Signage will be placed at critical resource areas to prevent unacceptable degradation to the watershed. The signage proposed would help educate and notify forest users of potential excessive degradation to burned watersheds.

Example of ATV (Off-Road) signs:

<p style="text-align: center;">ATTENTION: OHV RIDERS</p> <p style="text-align: center;">This OHV trail is open for your recreation pleasure. Please stay on the designated trail.</p> <p style="text-align: center;"><i>The immediate area off the trail is closed for burned area recovery.</i></p> <p style="text-align: center;">Riding off the trail is a violation of Federal regulations and punishable by fine and/or imprisonment.</p>

Road Drainage

Twelve culverts will need to be replaced to prevent projected road damage. In order to calculate the flow rates for the culverts, their positions were located and the data was applied using the Forest Service Technology & Development Program Relief Culverts October 1997 9777 1812—SDTDC. Using guidelines for maximum relief spacing based on average slope of the road of 7% and soil in group 2 the road drainage spacing should be somewhere between 200 and 240 feet the spacing. The area where culverts will be added will reduce road drainage distance to 260 feet. The lead off ditches, dips and culverts will be about at 250 foot spacing. Listed below are the findings:

- Forest Road 037 – 12 culvert replacements and 4 rolling dips.
- Forest Road 036 – 6 rolling dips.
- Forest Road 929 – 17 rolling dips.
- Forest Road – 8 rolling dips.

Cultural Resource/Highly Wind Erosive Area Treatments

1.5 miles of 3 strand barless wire fence will be installed to prevent OHV travel on sensitive cultural resource sites and highly erosive sand dunes sites. Vegetative recovery of this area is critical to the protection of these resources. This area will also be aerially seeded within the 800 acre treatment that is described above.

I. Monitoring Narrative:

Monitoring will begin in fiscal year 2006.

A detailed monitoring plan will be submitted as a separate document to the Regional BAER coordinator.

Noxious Weed and Invasive Plant Monitoring

Monitor the location of the known sites and likely sites for new infestations and implement control actions as specified in the Noxious Weed Amendment to the Dixie Forest Plan (2000). Randy Russell (Pine Valley Range Conservationist) will be responsible for this monitoring effort.

Blue Springs BAER

Noxious Weed Monitoring

OBJECTIVE: Monitor noxious weeds the Blue Spring fire perimeter to prevent an outbreak.

ITEM TO MONITOR: Presence and noxious weed within the burn perimeter.

TYPE OF MONITORING: Site visit/ocular

METHODS/PARAMETERS: Visit known location of noxious weeds. Grid exam in burned areas and along road corridors.

FREQUENCY/DURATION: FY06.

PROJECTED COSTS: \$2,100.00

REPORTING PROCEDURES: Annual Blue Spring BAER Monitoring Report

RESPONSIBILITY: Randy Russell, Range Conservationist

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 \$
A. Land Treatments										
Seeding and Aerial Application	acre	100	800	\$80,000	\$0		\$0		\$0	\$80,000
				\$0	\$0		\$0		\$0	\$0
ATV Barriers	sites	1000	5	\$5,000	\$0		\$0		\$0	\$5,000
Cultural Resource and Dune Protection Fence	mile	8000	1.5	\$12,000	\$0		\$0		\$0	\$12,000
<i>Subtotal Land Treatments</i>				\$97,000	\$0		\$0		\$0	\$97,000
B. Channel Treatments										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Channel Treat.</i>				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
Signage	signs	100	15	\$1,500	\$0		\$0		\$0	\$1,500
Rolling Dips	each	213	35	\$7,455	\$0		\$0		\$0	\$7,455
Culverts	each	1996	12	\$23,952	\$0		\$0		\$0	\$23,952
<i>Subtotal Road & Trails</i>				\$32,907	\$0		\$0		\$0	\$32,907
D. Structures										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0					
				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Structures</i>				\$0	\$0		\$0		\$0	\$0
E. BAER Evaluation										
BAER Assesment	days	300	30	\$9,000	\$0		\$0		\$0	\$9,000
<i>Subtotal Evaluation</i>				\$9,000	\$0		\$0		\$0	\$9,000
F. Monitoring										
				\$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				\$138,907	\$0		\$0		\$0	\$138,907

PART VII - APPROVALS

1. /s/ Robert A. Russell _____
Forest Supervisor (signature)

7/18/2005 _____
Date

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

07/20/2005 _____
Date