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BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

- A. Type of Report
[] 1. Funding request for estimated WFSU-SULT funds
[X] 2. Accomplishment Report
[] 3. No Treatment Recommendation
- B. Type of Action
[] 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation measures)
[X] 2. Interim Report
 [X] Updating the initial funding request based on more accurate site data or design analysis
 [X] Status of accomplishments to date
[] 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

- A. Fire Name: Valley Road
B. Fire Number: PNB5SW
C. State: Idaho
D. County: Custer
E. Region: Intermountain (R04)
F. Forest: Sawtooth
G. District: Sawtooth National Recreation Area
H. Date Fire Started: September 3, 2005
I. Date Fire Contained: October 1, 2005 (est.)
J. Suppression Cost: \$7,495,000 (estimate)
K. Fire Suppression Damages Repaired with Suppression Funds
 1. Fireline waterbarred (miles): 30.0 (handline), 0.75 (tractor line)
 2. Fireline seeded (miles): none
 3. Other (identify): Incident Command Post (10 acres), Helibase (10 acres), Heli-spots/Spike Camps (8 sites)
L. 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
170602010901	Prospect-Robinson Bar	15	170602011103	Fisher Ck	75
170602010902	Swimm-Martin	48	170602011104	Fourth of July Ck	67
170602010903	Upr Warm Springs CK	49	170602011106	Champion Ck	48
170602011102	Gold-Williams	1	170602011201	Warm-Taylor	7

- M. Total Acres Burned:
 NFS Acres (40,618) Other Federal (0) State (0) Private (213)

- N. Vegetation Types: Perennial Grass Montane; Montane Shrub with intermingled with Aspen; Riverine Riparian dominated by conifer species (lodgepole pine and Engelmann spruce); Cool, Dry Douglas-fir; Warm, Dry Subalpine Fir; Persistent Lodgepole Pine; and high elevation Subalpine Fir (with whitebark pine).
- O. Dominant Soils: Soils that have developed over the Challis Volcanic and Wood River Formation are generally less erosive and more productive than those of the Batholith and Quarternary Glacial Alluvial Deposits. Soils that have developed over the Batholith typically have weathered, fractured, and eroded to form well-drained, non-cohesive soils with little horizon development, moderate to low fertility, and inherent moderate to high erosion hazard. Cool, moist, moderately deep sandy loam soils occupy north and east aspects and support forest vegetation. Soils that have developed over the Batholith are typically, single-grain, coarse sandy soils are found on south-facing slopes that are mostly dry and sparsely vegetated. Soils that have developed over the Quarternary Glacial Alluvial Deposits are more developed into sandy loam or loamy soils with high coarse rock contents. The lack of moisture available during the growing season is the main soil productivity limiting factor.
- P. Geologic Types: The geology is very complex due to several major geologic rock formations occurring within the fire area: The Idaho Batholith, Sawtooth Batholith, Wood River Formation, Challis Volcanics, and Quaternary Glacial Alluvial Deposits.
- Q. Stream Channels by Order or Class
 First Order: 80.8 miles Second Order: 27.6 miles Third Order: 23.1 miles
 Fourth Order: 8.3 miles Fifth Order: 5.7 miles
- R. Transportation System
 Trails: 36.0 miles Roads: 10.8 miles

PART III - WATERSHED CONDITION

- A. Burn Severity (acres): 18,993 high (47%) 15,114 moderate (37%) 5,165 low (13%)

Hydrologic Unit	Severity (acres and percent within Hydrologic Unit)				
	High	Moderate	Low	Unburned	Total
Prospect-Robinson	700 (5%)	710 (5%)	618 (4%)	160 (1%)	2,188 (15%)
Swimm-Martin	4,360 (27%)	2,553 (16%)	992 (6%)	2 (1%)	7,907 (48%)
Upr Warm Springs Ck	5,655 (27%)	3,366 (16%)	743 (4%)	398 (1%)	10,162 (49%)
Gold-Williams	119 (1%)	19 (0%)	0 (0%)	0 (0%)	138 (1%)
Fisher Ck	2,123 (28%)	2,892 (38%)	588 (8%)	151 (1%)	5,754 (75%)
Fourth of July Ck	3,275 (28%)	2,372 (21%)	1,549 (13%)	524 (1%)	7,720 (67%)
Champion Ck	2,560 (21%)	2,818 (23%)	256 (2%)	324 (1%)	5,958 (48%)
Warm-Taylor	201 (1%)	384 (3%)	419 (3%)	0 (0%)	1,004 (7%)
Totals	18,993	15,114	5,165	1,559	40,831

- B. Water-Repellent Soil (acres): 28,275
 [Calculation is based on field transect data, using the following water repellency percentages for the different burn severity classifications: High ~ 95%, Moderate ~ 66%, Low ~ 5%]
- C. Soil Erosion Hazard Rating (acres):
 Low: 9,810 Moderate: 11,297 High: 19,724
- D. Erosion Potential (tons/acre): 4.95 (for two years following the fire)

E. Sediment Potential (cubic yards/square mile): 1,759 (for two years following the fire)

PART IV - HYDROLOGIC DESIGN FACTORS

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

B. Design Chance of Success (percent): 55%

C. Equivalent Design Recurrence Interval (years): 10 (based on June 14, 1921 recorded event)

D. Design Storm Duration (hours): 2

E. Design Storm Magnitude (inches): 1.42

F. Design Flow (cfs per square mile): See table in Item H

G. Estimated Reduction in Infiltration (percent): 47

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

Hydrologic Unit	Design Flow (cfs per square mile) ¹	
	Pre-fire	Post-fire
Warm Springs	8.1	46.3
Fisher Creek	10.5	118.7
Fourth of July	12.9	96.0
Champion Creek	16.3	111.0

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Background. The 40,831 acre Valley Road Fire, located 14 miles southeast of Stanley, Idaho, started on private property from human cause. All but 213 acres of the burned area is on the Sawtooth National Forest. About 80 percent of the fire area burned at high and moderate severity (18,000 acres "high" and 15,000 acres "moderate"). The fire severely altered the soil-hydrologic function within four major tributaries to the Salmon River (Warm Springs, Fisher, Fourth of July, and Champion creeks). The extent of area in high and moderate burn has resulted in water repellent soils 90% over pre-fire conditions. Loss of soil-hydrologic function resulting from accelerated soil erosion, combined with increased efficiency in surface water routing and sediment delivery will impact critical aquatic resources, roads and trails, and possibly human life. The high percentage of changed watershed conditions combined with standing dead trees causes concern for potential threats to human life and safety, property/facilities, and important natural resources.

Summary of Issues.

- 1) Human Life and Safety. The burned area is entirely within the congressionally designated Sawtooth National Recreation Area (SNRA), a nationally significant recreation resource. With the high volume of use of the recreational area and facilities, there will be a high level of risk to forest visitors from falling snags for many years.
 - Four trailhead facilities provide access to 36 miles of high-use motorized and non-motorized recreation trails, including the Fisher Creek loop, a nationally known mountain bike trail. Backcountry dispersed recreation use by hikers, hunters, and stock-users is heavy.

¹ Design flows based on single 10-year event for pre-fire (vegetated) and post-fire conditions.

- ▶ Several Special Use Permits authorize outfitting and guiding for summer recreation activities and big game hunting.
 - ▶ The fire has exposed mining debris and created unstable ground in the surrounding the mine area. Visible hazards to human life and safety can be mitigated through clean-up activities, however, unidentified and unknown hazards may exist.
 - ▶ Post-fire watershed conditions threaten the life and safety of SNRA visitors using roads and trails. The roads accessing the trailheads are located in the valley bottoms, adjacent to high and moderate severity burned slopes. Normal storm frequencies and magnitudes can more easily initiate rill and gully erosion on the severely burned, over-steepened slopes. These “minor” events can activate “major” floods or debris flows in the smaller tributary drainages that intersect roads and trails, putting the safety of users at risk. BAER cannot design treatments to protect against all scales of erosion, flood, and debris flow events.
- 2) Property. Existing drainage structures in roads (culverts and ditches) and trails (waterbars) are not expected to accommodate increased runoff and accelerated soil erosion, and are likely to concentrate sediment and debris laden surface flows to adjacent streams. Failure of these facilities can increase the risk to human life and safety. Furthermore, failures of these facilities located within riparian conservation areas (RCAs) can contribute to further degradation of aquatic conditions.
- 3) Critical Natural Resources.
- ▶ The severely burned drainage network supports Federally listed aquatic species (chinook salmon, sockeye salmon, steelhead trout, and bull trout) and several other native and non-native species. All of the subwatersheds within the burned area are identified as high priorities for restoration and recovery of water quality and fisheries habitat. The Fourth of July and Warm Springs tributaries are identified as strongholds critical to the recovery of bull trout strongholds. Extensive fish mortalities occurred in all streams as a result of the active fire. The majority of riparian zones and refuge areas for fish (e.g. beaver ponds, headwater streams, etc.) were severely burned throughout most of the drainages. Refounding of Fourth of July and Champion Creeks will be complicated with downstream irrigation diversion issues. Future habitat changes are likely from destabilized banks, high water yields, and accelerated soil erosion and sediment delivery to streams.
 - ▶ Known noxious weed populations (Yellow toadflax, Dalmatian toadflax, and Spotted Knapweed) exist within and immediately adjacent to the burned area. The burned area, now lacking desired vegetation that can normally out-compete noxious weeds, supports unfavorable conditions for expansion of nearby populations of noxious weeds and other invasive species (Cheatgrass). The high level of visitors in the SNRA, specifically off-highway vehicles, stock users, hikers, and sight-seers, increases the potential for spread of noxious weeds and invasive species throughout the burned area.

B. Emergency Treatment Objectives:

- Where possible, attempt to improve conditions within the burned area to reduce threats to personal injury and/or human life of visitors to SNRA.
- Where feasible, initiate stabilization of slopes that pose threats to important natural and cultural resources along Warm Springs Creek, Pigtail Creek, Fisher Creek, Fourth of July Creek, and Champion Creek by replacing the natural ground cover consumed by the fire.
- Establish a direct treatment and preventive program to control the spread of noxious weeds and other non-desirable, invasive plant species in the burned area.
- Identify appropriate monitoring activities that estimate the effectiveness of emergency stabilization treatments and identify necessary maintenance and continuation of other approved BAER activities.

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

Land: 75% Channel: na Roads/Trails: 90% Other: na

D. Probability of Treatment Success:

	Years after Treatment		
	1	3	5
Land	55	75	85
Channel	n/a	n/a	n/a
Roads/Trails	75	85	95
Other	55	75	95

E. Cost of No-Action (Including Loss): \$5,685,921

The values at risk directly lost through No-Action include: soil productivity (as impacted by erosion and noxious weed potential), water quality, and high-value fisheries associated with four Federally listed aquatic species. Indirectly, there would be a cumulative loss of aquatic habitat from road failures due to inadequate drainage.

F. Cost of Selected Alternative (Including Loss): \$3,228,136

It was assumed the primary treatment (aerial straw application) would be successful in reducing resource values lost through No-Action by 72 percent. The remaining resource values lost (as a factor of success) were added to the cost of the primary land treatment.

G. Skills Represented on Burned-Area Survey Team:

[2] Hydrology	[2] Soils	[] Geology	[2] Range	[1] Recreation
[] Forestry	[1] Wildlife	[] Fire Mgmt.	[1] Engineering	[1] Minerals
[] Contracting	[] Ecology	[2] Botany	[2] Archaeology	[3] Safety
[2] Fisheries	[] Research	[3] GIS	[] Landscape Architect	

Team Leader: Terry Hardy, Soil Scientist – Boise National Forest

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Team Members:

John Thornton, Hydrologist, Boise National Forest
 Valdon Hancock, Hydrologist, Sawtooth National Forest
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 Dave Gilman, Soils Scientist (retired), Sawtooth National Forest
 Robin Garwood, Wildlife Biologist, SNRA, Sawtooth National Forest
 Kim Pierson, Botanist, Sawtooth National Forest
 Deb Taylor, Botanist (North Zone), Sawtooth National Forest
 Jill Kuenzi, Resource Information Manager (GIS), Sawtooth National Forest
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 Shawn Robnett, Engineer, Sawtooth National Forest
 Randy Thompson, Archeologist, Sawtooth National Forest
 Seth Cothran, Archeologist (North Zone), Sawtooth National Forest
 Ed Cannady, Backcountry Recreation Manager, Sawtooth National Forest
 Jeff Gabardi, Mining Engineer, Sawtooth National Forest

Jay Dorr, Recreation/Trails (Safety), SNRA, Sawtooth National Forest
Sonny Thornborrow, GIS Technician, (Safety), Sawtooth National Forest
Amanda Peacher, Wilderness Ranger (Safety), Sawtooth National Forest

The following personnel from the State of Idaho Department of Environmental Quality (IDEQ), the Rocky Mountain Research Station - Forest Service (RMRS), and the US Geological Survey USGS) were of invaluable assistance in assisting with the BAER survey and plan development:

Michael McIntyre, Surface Water Programs Manager, IDEQ
Johnna Sandow – Water Quality Standards Specialist, IDEQ
Mike Gregory, Hazardous Waste Enforcement Coordinator, IDEQ
Troy Saffle, Regional Manager for Water Quality, IDEQ
Tom Herron, Senior Water Quality Analyst, IDEQ
Steve Heaton, Remediation Manager, IDEQ
Elton Mondroo, Geologist, IDEQ
Charlie Luce, Research Hydrologist, RMRS, Boise
Pete Robichaud, Research Engineer, RMRS, Moscow
Bill Elliot, Research Project Leader, RMRS, Moscow
John Moody, Research Hydrologist, USGS, Colorado

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.)

Land Treatments

Aerial Straw Mulch

Purpose of Treatment: Aerial straw mulch treatments will provide protective organic mulch important for stabilizing hillslopes by reducing/eliminating soil erosion and subsequent sediment delivery to the adjacent streams. This treatment is intended to reduce impacts to important aquatic resources, roads and trails, which may lessen the risk to human life and safety from debris flows and flooding.

The areas of proposed treatments are high severity burn areas absent of ground cover and hillslope obstructions needed to regulate soil erosion and loss of ash (only source of nutrient capital for decades). The treatment areas include the glacial troughs and high terraces in the Warm Springs, Pigtail, Fisher, Fourth of July, and Champion drainages to the streams that have or contribute to habitat associated with four Threatened and or Endangered fish species.

Mulching reduces downstream peak flows by absorbing and slowly releasing accelerated overland runoff due to bare soil, hydrophobic soils and compacted soils. Mulching even small areas at the source of floodwaters, and other areas critical to slope stabilization, can 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.

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: 0-20% slopes with high severity burns in valley bottoms along Warm Springs Creek, Pigtail Creek, Fisher Creek, Fourth of July Creek, and Champion Creek (refer to Treatment Map in project files).

Design/Construction Specifications: Suitable sites (5 polygons) are designated on the BAER Watershed Treatment map and in the field by either watershed or operations staff. Treat 1,891 acres by helicopter application of mulch to:

- 1) Slopes between 0 to 20%.
- 2) Where needle cast is not expected.
- 3) 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 and baled this year for easier application. Experience has shown that "double chopped" straw is more easily distributed as it breaks up more readily when released from cargo nets.

- 4) The rate of application is determined by qualified individuals who have been trained in the principles of BAER treatments. The rate of application is approximately 2,000 pounds per acre. This is about 35 - 40 straw bales per acre, spread 1/4 inch deep, if evenly distributed (approximately 3 straw shafts deep)
- 5) Storage. The straw bales should be delivered early to the staging area and kept dry. This may require use of canvas tarps or plastic covers to protect from precipitation and condensation.
- 6) Special ground support and equipment needs. Straw bales can vary from 50 - 80 pounds in weight or larger 1,000 pound bales can be used. For small bales a loading crew of 20 people can be used to help load cargo nets. The larger bales require fewer people to load cargo nets, however, a tractor with tongs or forks is needed to move the bales.
- 7) Specifications include partial cost, operation and maintenance of a mobile vehicle washing station to clean support vehicles needed for this treatment.

Implementation: Three Type 2 and one Type 1 helicopters were contracted for aerial straw application. Ground loading crews used mechanical equipment for loading straw into cargo nets. Straw stacks were covered when precipitation was expected. Approximately 1,400 acres were treated via aerial application in Fisher, Champion, Warm Springs, and Fourth of July drainages. In addition, 500 acres in the Fourth of July drainage were treated by hand crews, for a total mulch treatment of 1,900 acres. Project inspectors coordinated aerial drops when needed and checked the coverage level on the ground. Application within Fourth of July Creek avoided rocky slopes, terraces, and low severity burn areas. Areas where needle fall had occurred or was expected were avoided. Application of straw mulch included slopes greater than 20% within treatment areas as long as the slopes influenced riparian areas. The rate of application within Fourth of July Creek met the ¼ inch depth specification very well. The aerial mulching operation met the overall coverage objective. However, due to multiple days without wind and the moisture content of some of the straw bales received, there are areas of patchy or dense straw application. These areas are most evident in upper Champion Creek and upper Warm Springs Creek.

Noxious Weed Treatment

Purpose of Treatment: Reduce the potential for expansion of known noxious weed infestations in highly susceptible burned areas due to fire related disturbance and prevent increase in weed density in existing infestations.

General Description: Work will be contracted to treat 25 acres of existing noxious weed infestations that have resprouted in the burned area. Many of the known infestations are in remote locations that will require several days by foot or horseback to reach and effectively treat them. Little of the burned area where infestations occur is accessible by vehicle. Given the variable phenology and life history characteristics of the known noxious weeds in the burned area, several trips may be needed to appropriately treat weeds. This allows for the immediate treatment and eradication (i.e. hand pulling, herbicide application) of known infestations at the appropriate life stage to be most effective.

Location (Suitable) Sites: Existing known weed infestations within the Valley Road Fire burned area on Forest (see map in project files).

Design/Construction Specifications:

- 1) Select herbicide, application rate, and application timing based on specific weed being treated, and access to the location of the infestation.
- 2) Consideration for TES (listed species) habitat and sensitivity when selecting appropriate herbicide.

Noxious Weed Prevention

Purpose of Treatment: Noxious weed prevention actions are incorporated into the implementation of all BAER activities to minimize the rate of spread of noxious weed seeds from existing populations and prevent introduction of seeds from outside sources. The costs incurred from the prevention program are incorporated into the land, roads and trail activities.

Prevention Requirements:

- 1) Purchase an approved wash station for vehicle cleaning.
- 2) Wash station will be appropriate for cleaning equipment, mobile, and provide for the containment or proper disposal of contaminated water.
- 3) Material used for emergency stabilization activities shall be free of noxious weed seed and will comply with the 1995 Weed-free Forage Special Order.
- 4) No staging of equipment or rehab materials in known infestation sites.

Implementation: A wash station was purchased as a cost-share with the Sawtooth National Forest. The expense for BAER funds was equal to the rent associated for a 10-day project. The wash station was utilized for the decontamination of all work vehicles entering the burned area.

Channel Treatments

Robinson Bar Culvert Replacement

Purpose of Treatment: With the changed conditions from the fire, it is a high probability that the culvert will be blocked with debris over the next 5 years. The plugging and/or high flows may result in the stream overflowing the roadway. Replacing the culvert with a bridge will allow the maximum flow rate and a substantial amount of floating debris to pass. More important, removing the existing passage barrier will contribute to refounding a Bull trout population that was substantially impaired due to a high amount of mortality as a result of the fire.

General Description: The recommendation for this site is to replace an arched culvert with a bridge that will extend beyond bank full width. While the existing culvert can accommodate a "clean" 100-year flow event, any floating debris collecting on the upstream end of the culvert will restrict flow, causing the stream to flow over the road. In addition, the culvert is a passage barrier to certain life stages of Bull trout, a Federally-listed threatened and endangered species.

Location (Suitable) Sites:

- 1) Robinson Bar road (private property at the lower reach of Warm Springs Creek).

Design/Construction Specifications:

- 1) Survey, design, and construction addressed by private landowner.

Implementation: It was determined through engineering and experienced observations that the culvert poses a low risk to complete failure under the more common storm events. It was recommended to the landowner that cleanup of floating debris should be removed from upstream of the culvert entrance after the storm has safely passed. If a storm of high magnitude were to occur, there is both ample space for attenuation above the culvert and a built-in failure dip within the road prism to control the damage.

The BAER Team Leader and Sawtooth Fisheries biologist worked to complete a grant application for the Office of Species Conservation. The landowner's ranch manager, Erik Gillberg, submitted this grant on October 31, 2005. The Forest Service also worked to make all necessary agency contacts to secure other funding sources to leverage the culvert replacement cost. Agencies such as the Central Highlands RC&D, the Soil Conservation District, Bonneville Power Administration, US Fish and Wildlife Service, Trout Unlimited, Nature Conservancy, and landowner Carole King have indicated intent to help in cash or in-kind services. Erik Gillberg will take the lead in facilitating all further partnerships and solicit help from the Forest Service when necessary.

In January of 2006 funds were secured from the Office of Species Conservation (\$150,000), Bonneville Power Association (\$48,000), National Forest NFN3 fire rehabilitation (\$35,000), and Carole King (\$2,000) to implement the project. In the Winter and Spring bridge plans, consultation, and NEPA were completed. On June 4th, 2006 Erik Gillberg informed all partners that Carole King decided to withdraw her support from the project. This was quite a shock after the considerable time and energy invested. Precise reasons were not provided, but Carole is in the process of selling her ranch and construction of a new bridge may have interfered with these plans. At this time the project is permanently on hold.

Roads and Trails

Road Drainage Improvements

Purpose of Treatment: The purpose of these treatments is to increase culvert capacities to accommodate increased water flows and associated bedload and debris, and restore road template drainage. The objectives for accommodating increased flows are to: 1) stabilize and protect the existing transportation facilities; 2) decrease the chances of washing road fill into adjacent streams; and 3) minimize road failure induced flooding that could impact human life and safety.

General Description:

- 1) Replace or remove culverts in 15 locations that are at risk for flooding and/or debris flows. At approximately 10 sites, larger diameter pipes will replace culverts. At 5 other sites culverts will be removed and armored drivable dips will be installed.
- 2) Remove trees and debris from roadway and culvert inlets.

Location (Suitable) Sites: (see map in project files)

- 1) Mapped intermittent and perennial crossings on Fourth of July Creek Road (FDR 209).
- 2) Mapped intermittent and perennial crossing on Fisher Creek Road (FDR 132).

Design/Construction Specifications:

- 1) Survey, design, and contract administration by USFS.
- 2) Forest Service Specifications for Construction of Roads and Bridges and Special Contract Provisions.
- 3) Specifications include partial cost, operation and maintenance of a mobile vehicle washing station to clean support vehicles needed for this treatment.

Implementation:

Fourth of July Creek: A total of three drivable dips were constructed, one culvert was replaced with a larger diameter culvert, and one new culvert was installed. Other work included the maintenance of existing drainage structures to bring them to current standards in response to the burned conditions.

Fisher Creek: A total of three drivable dips were constructed. Two of the drivable dips replaced existing 15-inch corrugated metal pipes. A total of five culverts were replaced with larger diameter culverts. Other work included the maintenance of existing drainage structures to bring them to current standards in response to the burned conditions.

Trailhead Safety

Purpose of Treatment: The purpose of this treatment is to reduce potential impacts to human life and safety. The intent is to remove foreseeable hazards at locations that are occupied by larger numbers of people for longer time periods.

General Description: Remove burned trees likely to jeopardize human health and safety at developed trailheads where the public is provided parking facilities. Also collapse and fill vault of burned outhouse to eliminate safety hazard.

Location (Suitable) Sites:

- 1) Champion Lakes Trailhead (includes filling one toilet vault).
- 2) Fisher Creek Trailhead.
- 3) Fourth of July Trailhead.

Design/Construction Specifications:

- 1) Specifications include partial cost, operation and maintenance of a mobile vehicle washing station to clean support vehicles needed for this treatment.

Implementation: Hazard trees located near trailheads were flagged by qualified personnel and removed. All trees that were flagged and removed were an existing hazard and identified as high-risk for parking areas, bathrooms, signs, or other high-use facilities. At the Fourth of July trailhead, 44 hazard trees were identified and felled, and all trees were felled at the Fisher Creek trailhead. At the Champion Lakes trailhead, 68 hazard trees were identified and felled. The C&M crew using Forest Service equipment filled a toilet vault near the trailhead, exposed after a structure loss.

Trail Drainage Maintenance

Purpose of Treatment: The maintenance is needed to provide for maximum effectiveness of existing water bars to efficiently route water and sediment from the trails, thereby preventing erosion of trail surface and minimizing impacts to habitat for Federally listed aquatic species. Predicted increases in surface runoff/overland flow are expected to erode soils from the burned area and deliver sediment to adjacent streams. Trails within burn perimeter are excellent conveyors for routing significant volumes of sediment to nearby streams if drainage facilities are not adequate to process increased runoff. In addition, the increased flows can erode trail tread, delivering even greater amounts of sediment to nearby streams.

General Description: Clean existing erosion control facilities (waterbars and dips) on trails within Riparian Conservation Areas (RCAs) and in areas with high and moderate burn severity.

Location (Suitable) Sites: Twenty miles of trail are located within RCAs, 33 of the 36 miles of trail are in high or moderate burn severity areas.

Design/Construction Specifications:

- 1) As per FSH 2309.18

Implementation: See the narrative under the Trail Drainage Construction section for both maintenance and new construction activities completed during the BAER implementation.

Trail Drainage Construction

Purpose of Treatment: To ensure drainage structures sufficiently divert water given expected increased runoff/overland flow, accelerated erosion, and increased sediment delivery. The need for erosion control is to protect trail resource investment and high value watershed values, including spawning and rearing habitat for Federally listed aquatic species.

General Description: Install 200 log water bars on trails within RCAs to divert water, reduce sediment delivery to adjacent streams, and minimize erosion of the trail bed. Location (Suitable) Sites: Trail sections within high and moderate severity burned areas that are greater than 5-8% grade and/or lie within the Resource Conservation Areas (RCAs) where existing erosion control facilities are not sufficient to handle increased runoff.

Design/Construction Specifications:

- 1) According to USFS Trails Handbook 2309.18, 5, exhibit 15.

Implementation: Water bars were repaired or replaced along 33 miles of trails in Garland, South Fork, Champion, Casino/Martin, Martin, Williams, Pigtail, and Warm Springs Creeks. Approximately 413 water bars were constructed or maintained. There were about 258 new waterbars constructed and about 155 maintained or reconstructed.

Champion Creek	88 new	100 maintained or reconstructed
Martin Creek	59 new	Small portion reconstructed
Warm Springs Creek	88 new	Small portion reconstructed
Williams Creek	10 new	45 maintained (3 culverts replaced)
Pigtail Creek	13 new	10 maintained

Structures

Range Fence

Purpose of Treatment: The fence is required to prevent access from cattle and Off Highway Vehicle (OHV) use, to allow recovery of severely burned areas. In addition, the boundary fence would prevent cattle movement into the burned area from adjacent private land.

General Description: Construct one mile of fence along the west side of Warm Creek C&H Allotment. The cost of materials, construction, and take-down of a temporary fence will be applied as cost share towards the replacement of a permanent boundary fence burned in the fire.

Location (Suitable) Sites: Construction will start just south of the Warm Creek – Forest Boundary intersection and proceed south to tie into the existing unburned fence.

Design/Construction Specifications: A cost estimate includes materials and labor for constructing three strands of standard galvanized wire strung between steel T-posts with plastic insulators, set at

60 foot intervals, fiberglass rod “stays” placed at 20 foot spacings, H-braces installed at least every 400 feet, and deep cell batteries to charge the fence through the grazing season.

Implementation: One mile of let down fence constructed with four strands of standard galvanized wire strung between steel T-posts and wood posts. The top three strands barbed wire and a single smooth wire on the bottom. Wood stays have been used to stabilize wire when standing and let down. Top wire spaced at 40-42" and bottom wire at 14-16" for wildlife movement. The remaining two wires are spaced evenly between the top and bottom. Wood H-braces installed at least every 400 feet. The fence will be let down at the end of grazing season. Metal posts were replaced as necessary where the fence had been damaged. Wooden “stays” were replaced on the section of fence, as the majority of existing “stays” were burned by the fire or worn down from use. All H-braces on the section were replaced. Existing wire strands were in good condition with the exception of a small number of breaks, and the existing bottom strand was replaced with smooth wire. The sections of fence surrounding the burned area were not built to be electrically charged, so the installation of deep cell batteries was not feasible.

Aztec Mine/Fisher Creek Trailhead Barrier Fence

Purpose of Treatment: The fence will reduce threats to public health by preventing access to hazard areas of the mine site by SNRA visitors and protect watershed values and cultural sites by reducing the probability of unauthorized motorized OHV use off designated travel routes.

General Description: Construct .11 mile of fence at Fisher Creek Trailhead to prevent access to hazardous conditions (hazardous materials, open shafts) that exist as a result of the fire burning the Aztec Mine area, and to prevent illegal off-road ATV use. The cost of materials, construction, and take-down of a temporary fence will be applied as cost share towards the replacement of a fence that existed prior to the fire.

Location (Suitable) Sites: Aztec Mine/Fisher Creek Trailhead

Design/Construction Specifications:

- 1) The trailhead is in “Retention” VQO, which directs activities to “only repeat form, line, color, and texture, which are frequently found in the characteristic landscape.”
- 2) Recommend a three rail fence: bottom rail 24" above ground, top rail 48". Unpeeled rails 4-6" diameter. Eight-foot post spacing, posts 6-8" diameter, set 24" in ground.
- 3) Post and rail must be used to protect the visual quality of the area and fence construction should be able withstand snow load and other stresses over three winters at 8,500' elevation.
- 4) Specifications include partial cost, operation and maintenance of a mobile vehicle washing station to clean support vehicles needed for this treatment.

Implementation: The post and rail fence was constructed according to the specifications above. The only notable exception was the use of burned trees to serve as the rails. Most of the posts were new. The fence was also moved to a location just downslope from the original location to better serve as a barrier fence for parking.

Road and Trail Hazard Signs

Purpose of Treatment: Ensure maximum visibility and readability of signs warning SNRA visitors of the hazards to human life and safety that exist in burned area. Signs are intended to emphasize the increased hazards from falling burned trees, and potential for debris flows and flooding.

General Description: Install signs at all roads and trailheads that enter or provide access to trails in the burned area.

Location (Suitable) Sites: (see map in BAER report)

- 1) 2 road signs on Fourth of July Creek road (FDR 209).
- 2) 2 road signs on Fisher Creek road (FDR 132).
- 3) 14 trailheads within and surrounding the SNRA that access the burned area.
- 4) 12 trail junctions within the burned area.

Design/Construction Specifications:

- 1) Road Signs: Reflectorized wood backed signs (3' x 6') with letter size according to USFS Handbook specifications mounted on 4"x4"x8' posts at heights and distances mandated in USFS Handbook.

- 2) Trail Signs: Reflectorized wood backed signs (2' x 2') with letter size according to USFS Handbook specifications mounted on 4"x4"x8' posts at heights and distances mandated in USFS Handbook.

Implementation: Because specialized signs that comply with Forest standards were not immediately available, temporary signs (laminated paper) were posted immediately after the fire to warn visitors of potential hazards that exist as a result of the fire. Signs that comply with Forest standards were ordered for roads, trailheads, and trail intersections areas, warning of potential hazards to foot and motorized traffic. Permanent signs have been constructed and delivered. All signs as of June 2006 have been installed. The last signs to be installed due to their remote locations were the 14 trailhead signs.

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.)

Aerial Straw Mulching

The purpose of this monitoring is to determine if objectives were met for the application and effectiveness of aerial straw mulch. The primary indicators are an estimate of ground cover resulting from aerial application and condition of straw mulch from mitigating raindrop impact erosion and overland flow on valley bottom sites. Random hoop placement would be used at 15 valley bottom sites in the five subwatersheds where treatments are recommended.

Noxious Weed Monitoring

The purpose of the monitoring is to prevent known noxious weed infestations from spreading and/or increasing in density, to detect, respond rapidly to new infestations associated with fire suppression and fire effects of the Valley Road Fire, and to prevent potential new infestations resulting from BAER emergency response actions.

Authorized individuals will conduct all monitoring to insure compliance with specific, detailed requirements (intensity, frequency, funding, timing, length of time, locations, etc) as identified in the Specification Sheet for Weed Monitoring in the BAER Report.

Monitoring will be done at intensity and frequency to identify spread or occurrence of weed infestations following the fire event, short-term emergency stabilization, and recovery. Funding sources will include BAER authorities where appropriate, and other Forest Service programs or the CWMA.

Monitoring will begin in 2006 and will focus on known infestations prior to the Valley Road Fire and will include examination of potential associated with fire and suppression effects. Monitoring will focus on two specific areas: 1) the 25 acres of known infestations and 2) BAER emergency stabilization treatment areas.

- 1) Area Disturbed by Suppression Actions and the Burned Area:
 - a) Fire camp and associated vehicle wash station at Valley Road, Camp Zulu above Lost Creek and helispot camps.
 - b) Roads (refer to specific roads listed on Specification Sheet in BAER Report).
 - c) Selected locations within the Warm Creek Sheep and Goat Allotment (locations to be determined and implemented by Range Staff, SNRA).
- 2) Areas disturbed with BAER emergency stabilization treatments.
 - a) Straw mulch treatment and storage/staging areas will be monitored for noxious weed establishment (5 locations – Champion, Fourth of July, Warm Springs, Pigtail and Fisher Creek Drainages).
 - b) Roads and culverts – 18 sites identified.
 - c) Recreation treatments primarily include maintenance and installation of water bars, trailhead safety (hazard removal and signing).
 - d) Wash station sites associated with BAER activities – monitor for 3 years following emergency response activities.

Road Storm Patrols

The purpose of the monitoring is to evaluate effectiveness of the emergency stabilization treatments completed on roads and to identify additional work needed to maintain and/or repair treatments. Engineering personnel will survey Fourth of July road (FDR 209) and Fisher Creek road (FDR 132) after Spring snow-melt and high-intensity summer thunderstorms. Survey will inspect road surface condition, ditch erosion, and culverts/inlet basins for capacity to accommodate runoff flows. Four patrols per year are anticipated and scheduled for 3 years.

Trail Drainage Monitoring

The purpose of the monitoring is to identify maintenance and/or repairs necessary for ensuring effectiveness of the trail drainage maintenance and water bar construction in meeting objectives of minimizing damage to the trail resource and reducing sediment delivery to adjacent streams. Trail/recreation personnel will survey 33 miles of trails located within the high or moderate burn severity areas, and specific trail segments where new water bars were constructed after Spring snow-melt. Monitoring will evaluate trail tread erosion and efficiency of water bars to route surface flows from trails into areas where sediment is not delivered to nearby streams.

Range Allotment Monitoring

An administrative closure will require rest from livestock grazing on all four allotments burned by the fire. Annual monitoring is recommended to cover two range related elements: 1) fence maintenance and repairs necessary to meet the objective of keeping cattle and OHVs from entering areas burned in the fire, and 2) trespass of livestock in areas that have been administratively closed.

Cultural Resource Monitoring

Monitoring is needed to determine if measures provided through the Abandoned Mine Lands program are effective in protecting the Aztec properties. Specifically, erosion prevention for site protection and fencing to reduce the potential for vandalism and threats to human.

Part VI – Emergency Rehabilitation Treatments and Source of Funds by Landownership

A. Estimates for Emergency Treatment Stabilization costs (Interim 2500-8 BAER Report, 10/17/2005).

Line Items	Units	Unit Cost	# of Units	NFS Lands		# of units	Other Lands		Total
				WFSU	Other		Fed	Non Fed	
				SULT \$	\$		\$	\$	\$
A. Land Treatments									
Straw Mulching	acre	898	1,891	\$1,698,118	\$0		\$0	\$0	\$1,698,118
Noxious Weed Treatment	acre	85	25	\$2,125	\$0		\$0	\$0	\$2,125
<i>Subtotal Land Treatments</i>				\$1,700,243	\$0		\$0	\$0	\$1,700,243
B. Channel Treatments									
none				\$0	\$0		\$0	\$0	\$0
<i>Subtotal Channel Treatments</i>				\$0	\$0		\$0	\$0	\$0
C. Road and Trails									
Road Drainage Improvement	crossing	4,650	15	\$69,750	\$0		\$0	\$0	\$69,750
Trailhead Safety	site	1,430	3	\$4,290	\$0		\$0	\$0	\$4,290
Trail Drainage Maintenance	miles	126	26	\$3,276	\$0		\$0	\$0	\$3,276
Trail Drainage Construction	each	175	290	\$50,750	\$0		\$0	\$0	\$50,750
Robinson Bar Fish Passage		210,000		\$0	\$0		\$0	1 \$210,000	\$210,000
<i>Subtotal Road & Trails</i>				\$128,066	\$0		\$0	\$210,000	\$338,066
D. Structures									
Cost-Share Range Fence	miles	6,808	1	\$6,808	\$0		\$0	\$0	\$6,808
Cost-Share Aztec Fence	miles	45,455	0.11	\$5,000	\$0		\$0	\$0	\$5,000
Hazard Warning Signs	each	300	4	\$1,200	\$0		\$0	\$0	\$1,200
Hazard Warning Signs	each	100	26	\$2,600	\$0		\$0	\$0	\$2,600
<i>Subtotal Structures</i>				\$15,608	\$0		\$0	\$0	\$15,608
E. BAER Evaluation									
Assessment Team	report	65,000	1	\$65,000	\$0		\$0	\$0	\$65,000
<i>Subtotal Evaluation</i>				\$65,000	\$0		\$0	\$0	\$65,000
F. Monitoring									
Aerial Straw Mulch	report	3,505	1	\$3,505	\$0		\$0	\$0	\$3,505
Noxious Weeds	report	42,028	1	\$42,028	\$0		\$0	\$0	\$42,028
Road Storm Patrols	each	650	4	\$2,600	\$0		\$0	\$0	\$2,600
Trail Drainage Monitoring	miles	120	33	\$3,960	\$0		\$0	\$0	\$3,960
Range Allotment Monitoring	each	1,910	1	\$1,910	\$0		\$0	\$0	\$1,910
Cultural Resource Monitoring	each	5,780	1	\$5,780	\$0		\$0	\$0	\$5,780
<i>Subtotal Monitoring</i>				\$17,755	\$0		\$0	\$0	\$59,783
G. Totals				\$1,926,672	\$0		\$0	\$210,000	\$2,178,700

- B. Estimated cost of implemented emergency treatments completed to date, based on contract, supply, equipment, and personnel costs through review of transaction register reports. Activities with "# of Units" in **RED** have not been implemented.

Line Items	Units	Unit Cost	# of Units	NFS Lands			Other Lands		All
				WFSU	Other		Fed	Non Fed	Total
				SULT \$	\$		\$	\$	\$
A. Land Treatments									
Aerial Straw Mulching	acre	878	1,891	\$1,661,706	\$0		\$0	\$0	\$1,661,706
Noxious Weed Treatment	acre	250	25	\$6,250	\$0		\$0	\$0	\$6,250
Subtotal Land Treatments				\$1,667,956	\$0		\$0	\$0	\$1,667,956
B. Channel Treatments									
none				\$0	\$0		\$0	\$0	\$0
Subtotal Channel Treatments				\$0	\$0		\$0	\$0	\$0
C. Road and Trails									
Road Drainage Improvement	crossing	2,143	13	\$27,854	\$0		\$0	\$0	\$27,854
Trailhead Safety	site	1,100	3	\$3,300	\$0		\$0	\$0	\$3,300
Trail Drainage Maintenance	each	167	155	\$25,921	\$0		\$0	\$0	\$25,921
Trail Drainage Construction	each	340	258	\$87,664	\$0		\$0	\$0	\$87,664
Robinson Bar Fish Passage		210,000		\$0	\$0		\$0	\$0	\$0
Subtotal Road & Trails				\$144,739	\$0		\$0	\$0	\$144,739
D. Structures									
Cost-Share Range Fence	miles	6,800	1	\$6,800	\$0		\$0	\$0	\$6,800
Cost-Share Aztec Fence	miles	45,455	0.11	\$5,000	\$0		\$0	\$0	\$5,000
Hazard Warning Signs	each	300	4	\$1,200	\$0		\$0	\$0	\$1,200
Hazard Warning Signs	each	292	26	\$7,592	\$0		\$0	\$0	\$7,592
Subtotal Structures				\$20,592	\$0		\$0	\$0	\$20,592
E. BAER Evaluation									
Assessment Team	report	65,000	1	\$0	\$0		\$0	\$0	\$0
Subtotal Evaluation				\$0	\$0		\$0	\$0	\$0
F. Monitoring									
Aerial Straw Mulch	report	3,505	1	\$3,505	\$0		\$0	\$0	\$3,505
Noxious Weeds	report	10,000	1	\$10,000	\$0		\$0	\$0	\$10,000
Road Storm Patrols	each	650	4	\$2,600	\$0		\$0	\$0	\$2,600
Trail Drainage Monitoring	miles	120	33	\$3,960	\$0		\$0	\$0	\$3,960
Range Allotment Monitoring	each	1,910	1	\$1,910	\$0		\$0	\$0	\$1,910
Cultural Resource Monitoring	each	5,780	1	\$5,780	\$0		\$0	\$0	\$5,780
Subtotal Monitoring				\$27,755	\$0		\$0	\$0	\$27,755
G. Totals				\$1,861,042	\$0		\$0	\$0	\$1,861,042

PART VII - APPROVALS

1. /s/ Ruth M. Monahan
Forest Supervisor (signature)

_____ Date

2. William P. LeVere for
Acting Regional Forester (signature)

June 30, 2006
Date