

Date of Report: 12-18-03

**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: Burn Ridge B. Fire Number: CO-RTF-0509, P25020(0206)  
C. State: CO D. County: Jackson County, Routt County  
E. Region: 02 F. Forest: Routt National Forest  
G. District: Parks and Hahns Peak/Bears Ears Ranger Districts  
H. Date Fire Started: 8-12-02 I. Date Fire Contained: Estimated 9/25/02  
J. Suppression Cost: \$13.3 million for entire Mount Zirkel complex (includes Burn Ridge and Hinman fires)  
K. Fire Suppression Damages Repaired with Suppression Funds  
    1. Fireline waterbarred (miles): Dozer line: 11 miles, hand-line: 22.5 miles  
    2. Fireline seeded (miles): 0 miles  
    3. Other (identify):  
L. Watershed Number (HUC): 140500010604, 140500010612, 101800010501, 101800010604  
M. Total Acres Burned: 13,672  
    NFS Acres(13,407 ) Other Federal ( ) State ( ) Private ( ) \*265 acres intermixed private, BLM and state  
N. Vegetation Types: Predominantly spruce-fir with some lodgepole pine in lower elevations  
O. Dominant Soils: Typic Dystrochrepts and Type Cryothents that are loamy skeletal  
P. Geologic Types: Young glacial drift, interlayered gneisses, and granite.

Q. Miles of Stream Channels by Order or Class: Based on USGS blue-lines  
Perennial: 22.6 miles, Intermittent: 2.1 miles

R. Transportation System

Trails: 9.2 miles      Roads: 3.1 miles

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

A. Burn Severity (acres): 6052 (low) 2966 (moderate) 1838 (high)

B. Water-Repellent Soil (acres): 4600 acres

C. Soil Erosion Hazard Rating (acres):  
1305 (low) 6527 (moderate) 5220 (high)

D. Erosion Potential: 7 (avg) tons/acre

E. Sediment Potential: 1177 cubic yards / square mile

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

A. Estimated Vegetative Recovery Period, (years): 3 yrs for groundcover, 80 years for timber

B. Design Chance of Success, (percent): 80%

C. Equivalent Design Recurrence Interval, (years): 10 year

D. Design Storm Duration, (hours): 6 hours

E. Design Storm Magnitude, (inches): 1.5 inches

F. Design Flow, (cubic feet / second/ square mile): 48 cfs (based on Hell Cr)

G. Estimated Reduction in Infiltration, (percent): 20-80% depending on severity

H. Adjusted Design Flow, (cfs per square mile): 54 cfs

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

- A. Describe Watershed Emergency: The Burn Ridge fire started on August 12, 2002 on the west side of the Park Mountain Range in the Mount Zirkel wilderness. Suppression efforts were limited by the fire being in the wilderness which only allowed for hand-crews and aerial suppression efforts. The fire made a run on Friday August 16, 2002 at which time the majority of the acres were consumed and the fire crossed the continental divide into the Roaring Fork and Hell Creek watersheds in the North Platte drainage. The majority of the fire was a mosaic burn such that large blocks of high burn severity are not present. Due to the generally mosaic pattern of the fire within the wilderness, and Forest Plan direction regarding wilderness, no watershed emergencies or treatments were identified within the Mount Zirkel wilderness. See watershed and soils reports (Attachments 1 and 2 ) for more details.

Field reconnaissance outside of the fire in the vicinity of FSR 652 found an area of high burn severity on steep slopes. Soils in this area were strongly hydrophobic, and there was little to no surface litter or duff remaining after the fire. The combination of no strong hydrophobicity on steep slopes with no

surface protection or potential recruitment for surface protection suggests that there is a threat to long-term soil productivity. Aerial seeding during the fall of 2002 is recommended to provide some surface protection during summer thunderstorm events that will occur during the summer of 2003; this will help to maintain long-term soil productivity.

The presence of strong hydrophobic soils combined with the loss of vegetation will increase peak flows from storm events in the vicinity of FSR 652. While the increase in peak flows are not expected to significantly affect the Hell Creek mainstem which is the main drainage in this watershed, there is a concern about the effects of increase peak flows and surface erosion on FSR 652. While the number of drainage structures in FSR 652 appears almost adequate to accommodate the increased water and sediment yields, many of these structures need to be maintained and the size enhanced to ensure that they are effective at diverting water off of the road during storm events. The steepness of the sideslopes combined with the lack of vegetation following the fire suggest that water concentrated by the road during runoff events following the fire could result in significant surface erosion. It is recommended that slash filters be placed at the outlet of waterbars which drain directly onto burned slopes to disperse the concentrated flow and dissipate the energy.

**B. Emergency Treatment Objectives:**

- 1) Decrease erosion from the uplands in order to maintain long term site productivity
- 2) Maintain the Forest Service Transportation system.
- 3) Promote re-establishment of native plant communities to prevent the invasion of noxious weeds as a result of the fire.
- 4) Monitor the effectiveness of the BAER treatments.
- 5) Monitor the potential spread of noxious weeds.

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

Land 80 % Channel     % Roads 80 % Other     %

**D. Probability of Treatment Success**

	Years after Treatment		
	1	3	5
Land	85%	90%	90%
Channel			
Roads	80%	90%	90%
Other			

**E. Cost of No-Action (Including Loss):** \$1,145,000

**F. Cost of Selected Alternative (Including Loss):** \$358,572

**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 type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering	<input type="checkbox"/>

☐ Contracting    ☐ Ecology    ☐ Botany    ☒ Archaeology    ☐  
☒ Fisheries    ☐ Research    ☐ Landscape Arch    ☒ GIS

Team Leader: Kirk Wolff assisted by Liz Schnackenberg and Tommy John

Email: [kwolff@fs.fed.us](mailto:kwolff@fs.fed.us)  
[lschnackenberg@fs.fed.us](mailto:lschnackenberg@fs.fed.us)

Phone: (970)870-2226  
(970)870-2234

FAX: (970)870-2284

#### 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: Due to early snows, aerial seeding was not implemented in the fall of 2002. Following the 2003 spring runoff and subsequent re-evaluation, hydrophobicity still strong, there are signs of increased upland erosion, channel damage, and sedimentation to the stream system. As a result of these new findings, aerial straw mulch is proposed to minimize upland surface erosion, channel damage, and sedimentation to the stream system. Straw mulch will be applied to a depth of two inches over at least seventy percent of the severely burned concern area instead of the aerial seeding that was initially proposed. The change from aerial seeding to straw mulching is due to loss of the seedbed prep due to crusting of the soils, and loss of ash layer. Applying seed at this time of year would also not be effective. This treatment would occur in conjunction with the proposed aerial straw mulch treatments on the Hinman Fire portion of the Mount Zirkel complex which will minimize mobilization costs and increase efficiency.

**FY03:** Aerial mulching of 70 acres was completed in the fall of 2003.

Roads and Trail Treatments: Given the location of FSR 652 relative to the high severity burn area on steep slopes, it is recommended that 1) the existing water bars be maintained to ensure that they are properly functioning and that they are of an adequate size to accommodate the increased water and sediment during storm events following the fire, 2) that 2-3 additional water bars be added to ensure adequate drainage on all portions of the road affected by the fire.

In addition to the above treatments, there are two locations on FSR 652 where it crosses well defined ephemeral draws. Each of these locations currently have deep road fills with no existing culverts; the fill of the road is too deep to provide for water passage. Given that both water and sediment/debris yields are expected to significantly increase in these two ephemeral draws, it is recommended that the fill be removed and 'low-water' crossings be constructed to allow of the increase in storm flow and debris/sediment movement following the fire. Following the 2003 spring runoff there was significant surface erosion and gullying in the areas of the ephemeral draws which will require additional rock armoring. The rock armoring will increase the road treatment costs as noted in the spreadsheet. This will prevent future storm flow from washing out the road fill, and the potential creation of a debris dam which, once it failed, would create a debris torrent in the ephemeral draws.

**FY03:** The above described road treatments were completed in the fall of 2003.

#### **Accomplishments:**

- Maintained and enhanced 33 waterbars
- Constructed 3 new waterbars
- Stabilized 2 ephemeral draw crossings

#### 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.)

Noxious weeds: **FY03:** On 9/19/03 we surveyed approximately 272 acres in the Burn Ridge Fire for weeds. We entered the burn from the west and due to limited access, only surveyed a small portion of the west end due to difficulty in accessing the wilderness portion. There are six documented sites of Canada thistle within the Burn Ridge Fire. They will probably continue to spread, and increase in size. Some of these sites, due to the limited access, may be target populations for biological weed controls.

**FY04:** The next couple of growing seasons will be critical inventories to determine the extent of noxious weeds and invasive species within the Burn Ridge fire. Therefore, we are requesting an additional \$1000 for noxious weed monitoring in 2004. This will allow us the necessary staff and resources to complete an adequate weed survey in FY2004.

If weed populations are found to be spreading, treatment plans would be developed and an interim report filed for supplemental funding. Any treatment plans would be consistent with the 1995 Medicine Bow-Routt National Forests Weed EA.

Land Treatment effectiveness: **FY04:** Monitoring of the effectiveness of the aerial mulch will occur in the summer of 2004 to ensure that no significant surface erosion is occurring that would affect long-term soil health.

Road Treatment effectiveness: **FY04:** Monitoring of the road treatments in 2004 will ensure that the drainage structures are properly functioning including the areas of the ephemeral draws. Monitoring would include visual inspection to of the road surface and photos of any evidence of surface erosion. Visual inspections and photos would also be taken at the inlets and outlets of drainage structures to ensure that the structures are functioning.

**FY03: EXPENDITURES**
**Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership**

			NFS Lands				Other Lands				All
		Unit	# of	WFSU	Other		# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	SULT \$	\$		units	\$	Units	\$	\$
A. Land Treatments											
Aerial straw mulch	acre	500	70	\$35,000	\$0			\$0		\$0	\$35,000
				\$0	\$0			\$0		\$0	\$0
				\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Land Treatments				\$35,000	\$0			\$0		\$0	\$35,000
B. Channel Treatments											
				\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Channel Treat.				\$0	\$0			\$0		\$0	\$0
C. Road and Trails											
Enhance waterbars	ea	\$46	33	\$1,518	\$0			\$0		\$0	\$1,518
Construct waterbars	ea	\$300	3	\$900	\$0			\$0		\$0	\$900
Slash filters	ea			\$0	\$0			\$0		\$0	\$0
Ephem draw crossings	ea	\$1,500	2	\$3,000	\$0			\$0		\$0	\$3,000
				\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Road & Trails				\$5,418	\$0			\$0		\$0	\$5,418
D. Structures											
				\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Structures				\$0	\$0			\$0		\$0	\$0
E. BAER Evaluation											
Assessment team	ea			\$0	\$0			\$0		\$0	\$0
Spg 03 reassessment	ea	1000	1	\$1,000	\$0			\$0		\$0	\$1,000
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Evaluation				\$1,000	\$0			\$0		\$0	\$1,000
F. Monitoring											
Noxious weeds	days	250	6	\$1,500	0			\$250	6	\$1,500	\$1,500
Land treatments	days			\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Monitoring				\$1,500	\$0			\$0		\$0	\$1,500
G. Totals				\$42,918	\$0			\$0		\$0	\$42,918

**FY04: REQUEST**

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

<b>A. Land Treatments</b>										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Land Treatments</b>				\$0	\$0		\$0		\$0	\$0
<b>B. Channel Treatments</b>										
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Channel Treat.</b>				\$0	\$0		\$0		\$0	\$0
<b>C. Road and Trails</b>										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Road &amp; Trails</b>				\$0	\$0		\$0		\$0	\$0
<b>D. Structures</b>										
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Structures</b>				\$0	\$0		\$0		\$0	\$0
<b>E. BAER Evaluation</b>										
<b>Assessment team</b>	ea			\$0	\$0		\$0		\$0	\$0
	ea			\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Evaluation</b>				\$0	\$0		\$0		\$0	\$0
<b>F. Monitoring</b>										
<b>Land treatments</b>	days	300	1	\$300						\$300
<b>Noxious weeds</b>	days	250	6	\$1,500	0		\$250	6	\$1,500	\$1,500
<b>Rd treatments</b>	days	300	1	\$300	\$0		\$0		\$0	\$300
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Monitoring</b>				\$1,800	\$0		\$0		\$0	\$1,800
<b>G. Totals</b>				<b>\$2,100</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$2,100</b>

**PART VII - APPROVALS**

1. /s/Mary H. Peterson  
Forest Supervisor (signature)

12/18/03  
Date

2. \_\_\_\_\_  
Regional Forester (signature)

\_\_\_\_\_  
Date