

Date of Report: 7/7/2008

**BURNED-AREA REPORT**

(Reference FSH 2509.13)

**PART I - TYPE OF REQUEST**

## A. Type of Report

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

## B. Type of Action

- ☒ 1. Initial Request (Best estimate of funds needed to complete eligible stabilization 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: Corn CreekB. Fire Number: UT-DIF-080153C. State: UTD. County: GarfieldE. Region: R4F. Forest: DixieG. District: EscalanteH. Fire Incident Job Code: P4D73VI. Date Fire Started: June 15 2008J. Date Fire Contained: 6/20/2008K. Suppression Cost: \$2,400,000 as of 6/22/2008

## L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): Dozer Line 2.0 miles, Handline 15 miles  
2. Fireline seeded (miles): 0  
3. Other (identify):

M. Watershed Number: 140700050102 Birch Creek 29,258 acresN. Total Acres Burned: 2,269

NFS Acres(2192 ) Other Federal ( ) State ( ) Private ( 77 )

O. Vegetation Types Ponderosa Pine, PJ, sagebrush

P. Dominant Soils: The soils are typically very deep in the Ponderosa Pine with very gravelly loam and clay loam textures formed from limestone. The soils are typically shallow in the Pinyon-Juniper with very gravelly loam textures formed from Straight Cliff formation sandstone and shale.

Q. Geologic Types: Straight Cliffs of Kaiparowits Plateau

R. Miles of Stream Channels by Order or Class:

12.5 miles perennial stream

8.5 miles intermittent stream

S. Transportation System

Trails: 0 miles

Roads: 13.9 miles

**PART III - WATERSHED CONDITION**

A. Burn Severity (acres): 583 (26%) (low) 1314 (58%) (moderate) 168 (7%) (high)

B. Water-Repellent Soil (acres) Very Low (less than 50 acres) (see discussion below): Typically all the sites examined had low hydrophobicity (less than 10 second water infiltration) and were correlated to moderate burn severity. The sites contained areas with burned duff layers containing recognizable fragments of needles and other litter. Light colored ash occurs on the surface where coarse woody debris were present and black ash covering the majority of the soil surface. Trees and shrubs are charred, with pine needles remaining on 70% of the trees in the ponderosa pine. Large logs (coarse woody debris) have been consumed on the majority of the sites, from observations on past management of the area there was not much woody debris present to begin with. Bare ground on the sites analyzed did not exceed 35%.

C. Soil Erosion Hazard Rating (acres):

366 (low) 1517 (moderate) 386 (high)

D. Erosion Potential: .01 tons/acre (details in table below) The WEPP (Water Erosion Prediction Project) Model was used to estimate potential post-fire erosion. Conditions for the dominant soil type (620) within the burned area was modeled. A slope length of 50 feet was used for each soil type with 2 years of climate data simulation. A modified climate was patterned for typical distribution in this area with 20 inches of annual precipitation.

E. Sediment Potential: Minimal, based upon low erosion potential.

**PART IV - HYDROLOGIC DESIGN FACTORS**

A. Estimated Vegetative Recovery Period, (years): 3-5 years grasses, shrubs, aspen (groundcover)

B. Design Chance of Success, (percent): 90

C. Equivalent Design Recurrence Interval, (years): 5 and 10

D. Design Storm Duration, (hours): 0.25

E. Design Storm Magnitude, (inches): 5 yr 0.48; 10 year 0.61

F. Design Flow, (cubic feet / second/ square mile): prefire 8.2 cfs (1.4cfs/sqmi) 5 yr storm  
Post fire 18.4 cfs (3.3 cfs/sq mi) 10 yr storm

G. Estimated Reduction in Infiltration, (percent): 35%

H. Adjusted Design Flow, (cfs per square mile): Post fire 16 cfs (2.9 cfs/sq mi) 5 yr storm  
Post fire 49.6 cfs (8.8 cfs/sq mi) 10 yr storm

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

### **A. Describe Critical Values/Resources and Threats:**

#### **Threats to Human Life**

Field reviews within and downstream of the burn confirmed there are no situations where human occupancy of flood prone areas exists. Therefore, the effects of the fire do not appear to have created any significant threats to human life.

#### **Threats to Road Infrastructure**

There are numerous culvert crossings and road dips on FH17, FR144 and FR280 that appear to be undersized, even for pre-fire conditions. With flood flows expected to increase as a result of the fire, there could be debris loading over the next few years that could result in culvert plugging and loss of the road prism in numerous critical locations. Loss of this road due to poor drainage design could close (Main Canyon Road) one of the most utilized roads on the district. Closing this transportation route is not feasible due to the connectivity of this road to the surrounding road system and access to private land. Road drainage was evaluated on FH17 and FR144 to determine if they can function with anticipated increased flows. On the roads within the fire perimeter, 10 new culverts will need to be increased in size and 7 cleaned, also approximately 100 feet of rock rip-rap installation and rolling dip work will need to be conducted as soon as possible to properly handle anticipated flows.

#### **Threats to Unacceptable Resource Degradation**

To determine the need for future treatments, noxious weed assessments will be conducted to document if increased noxious weed invasion is occurring within the wildfire perimeter. Assessments will begin in fiscal year 2008.

Habitat effects to Colorado Cut-throat Trout, Goshawk, Deer/Elk Winter Range, and Mexican Spotted Owl were also analyzed.

- ☐ Water Canyon contains a remnant population of Colorado Cut-throat Trout, that was minimally affected by the fire and will have very little post fire effects from increased runoff and ash. This stream was impacted by fire retardant during suppression activities.
- ☐ Deer/Elk Winter Range, Goshawk and Mexican Spotted Owl habitat was also evaluated and determined that through the mosaic of the fire and the surrounding areas not impacted that the habitat effects to these species will be minimal.

#### **Threats to Water Quality**

Field reviews within and downstream of the burn confirmed there are threats to water quality. There will be sediment, ash output and changes to chemical water quality. The effects to on-site and downstream water quality and aquatic resources are expected to be short term (3 years). No erosion control methods were recommended due to low erosion potential and topography and conditions of the landscape.

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

Field reviews within the burn indicate there is a **low threat** to long-term soil productivity and ecosystem integrity. This threat is related to an expected increase in cheatgrass (*Bromus tectorum*). The threat is due to past management of the area coupled with consumption of rangeland vegetation by the fire. Past management decisions of allowing fire exclusion, livestock grazing and invasion of cheatgrass has resulted in a burn area where vegetation succession processes have been interrupted. As a result, desired natural revegetation of the burn area is not expected to occur in some areas. Instead, it is expected that some of burn area will see minimal production of natives that show low vigor, and that will, in a very short time, be overtaken by cheatgrass (*Bromus tectorum*). This invasion can result in very poor range land condition and subsequent accelerated soil erosion and associated loss of long-term soil productivity.

#### **Threats to Heritage Resources**

Field reviews within and downstream of the burn confirmed there are no significant threats to heritage resources.

B. Emergency Treatment Objectives:

The primary purpose of the emergency response is to take prompt action necessary to effectively protectt reduce or minimize significant threats to unacceptable resource degradation, property, noxious weeds and invasive plants. The emergency treatments being recommended by the Dixie BAER Team are specifically designed to achieve the following results.

1. Protect life and property by installing road warning signs of post fire flooding in three locations.  
FR30144 entering fire area by FH 17, FR30144 at the top end of the fire perimeter and on FH 17 just above the junction with State Highway 12
2. Protect roads in the area from post fire runoff.
3. Provide protection from unregulated grazing on burned areas.
4. Limit colonization and/or expansion of noxious weeds.
5. Provide protection to critical riparian areas.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:

Land    %    Channel   90   %    Roads/Trails   90   %    Protection/Safety   90   %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	NA	NA	NA
Channel	85	80	60
Roads	85	80	80
Protection/Safety	90	90	70

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

Value At Risk	Estimated Cost
Loss of FH17, FR144 and FR280.	\$220,000
Public Safety and Vehicle Damage from road erosion/washouts	\$90,000 (Safety is difficult to cost.)
Noxious Weed Encroachment	\$25,000
<b>Total</b>	<b>\$335,000</b>

F. Cost of Selected Alternative (Including Loss):

Value At Risk	Estimated Cost
Loss of FH17, FR144 and FR280.  15% (failure rate of road improvements from slow implementation or exceedingly high precipitation) of \$220,000 plus \$68,374 for the cost of the treatment.	\$101,274
Public Safety and Vehicle Damage from road erosion/washouts.  10% (failure rate from exceedingly high precipitation) of \$90,000 plus \$1,800 for the cost of the treatment.	\$10,800
Noxious Weed Encroachment.  25% (failure rate from undetected noxious weeds) of \$25,000 plus \$600 for the cost of the treatment.	\$6,850
<b>Total</b>	<b>\$118,924</b>

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 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: Rich Jaros, DNF Soil Scientist and Bill Goodman (trainee) DNF ERD Hydrologist

Email: wgoodman@fs.fed.us

Phone: 435 826 5434 FAX: \_\_\_\_\_

H. **Treatment Narrative:**

Land Treatments:

none

Channel Treatments:

Birch Creek Erosion Control on FH17

Purpose: To protect FH17 from excessive erosion from the stream meanders of Birch Creek.

Treatment: Install rip-rap to prevent loss of FH17 at a cost of \$13,400.

Roads Treatments:

Purpose: To protect roads from anticipated runoff and reestablish road drainage where sediment deposits have impaired the function of the road drainage system.

Treatment: Road drainage will be improved by replacing old plugged culverts, increasing the size of culverts, and removing piles of debris (rocks, logs) from culvert inlets. Rolling dips on the roadway will be maintained. (\$52,674)

Protection/Safety Treatments:

Purpose: To protect life and property by installing road warning signs.

Treatment: .Install 3 hazard warning signs; at FR30144 entering fire area by FH 17 and FR30144 at the top end of the fire perimeter and on FH 17 just above the junction with State Hwy 12. (\$900)

## **HAZARD SIGN EXAMPLE**

### **CAUTION**

These burned areas are subject to  
**EXTREME FLOODING HAZARDS**  
During spring snowmelt conditions and  
Summer thunderstorm events

or

### **BURNED AREA**

#### **BEWARE OF:**

**FALLING TREES  
& LIMBS  
ROLLING ROCKS  
FLASH FLOODS**

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

Monitor fire suppression DP's (Drop Points) and the road system for invasive and noxious weeds. (\$600)

Conduct storm patrols and monitor the effectiveness of road drainage treatments. (\$1,800)

**Part VI – Emergency Stabilization Treatments and Source of Funds**
**Interim # 1**

<b>A. Land Treatments</b>										
				\$0	\$0		\$0	\$0	\$0	
				\$0	\$0		\$0	\$0	\$0	
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0	
<i>Subtotal Land Treatments</i>				\$0	\$0		\$0	\$0	\$0	
<b>B. Channel Treatments</b>										
RIPRAP Placement	feet	134	100	\$13,400	\$0		\$0	\$0	\$13,400	
				\$0	\$0		\$0	\$0	\$0	
				\$0	\$0		\$0	\$0	\$0	
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0	
<i>Subtotal Channel Treat.</i>				\$13,400	\$0		\$0	\$0	\$13,400	
<b>C. Road and Trails</b>										
Culvert replacement	each	3099	17	\$52,683	\$0		\$0	\$0	\$52,683	
and cleaning				\$0	\$0		\$0	\$0	\$0	
				\$0	\$0		\$0	\$0	\$0	
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0	
<i>Subtotal Road &amp; Trails</i>				\$52,683	\$0		\$0	\$0	\$52,683	
<b>D. Protection/Safety</b>										
Hazard Warning Signs	each	300	3	\$900	\$0		\$0	\$0	\$900	
				\$0	\$0		\$0	\$0	\$0	
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0	
<i>Subtotal Structures</i>				\$900	\$0		\$0	\$0	\$900	
<b>E. BAER Evaluation</b>										
BAER Team	days	300	25	---	\$7,500		\$0	\$0	\$7,500	
<i>Insert new items above this line!</i>				---	\$0		\$0	\$0	\$0	
<i>Subtotal Evaluation</i>				---	\$7,500		\$0	\$0	\$7,500	
<b>F. Monitoring</b>										
Nox Weed	days	300	2	\$600						
Storm Patrol & Road	days	300	7	\$1,800						
Drainage Inspect				\$0	\$0		\$0	\$0	\$0	
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0	
<i>Subtotal Monitoring</i>				\$2,400	\$0		\$0	\$0	\$0	
<b>G. Totals</b>				\$69,383	\$7,500		\$0	\$0	\$74,483	
Previously approved										
Total for this request				\$69,383						

**PART VII - APPROVALS**

1. /s/ Robert G. MacWhorter  
Forest Supervisor (signature)

7/7/2008  
Date

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

7/8/2008  
Date