Date of Report: October 20 2009

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[X] 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[1]

A. Fire Name: Kootenai Creek Fire

B. Fire Number: MT-BRF- 005112

C. State: MT

D. County: Ravalli

E. Region: R1

F. Forest: Bitterroot

G. Districts: Stevensville

H. Fire Incident Job Code: P1E2K3

I. Date Fire Started: July 12, 2009

J. Date Fire Contained: Not yet contained

K. Suppression Cost: $2.5 million

L. Fire Suppression Damages Repaired with Suppression Funds
1. **Fireline waterbarred (miles)**: 7 miles dozer 9.5 miles hand line repaired.
2. **Fireline seeded (miles):** Seeding started 10/5, scheduled to finish by 10/15/09. All dozer and drop points to be seeded, along with selected hand lines (approximately 2 miles.
3. **Other (identify):**

M. Watershed Number: Fire burned parts of 6th-level watersheds 170102051203 (Kootenai – Larson) and 1305 (Brooks Face, Florence Bitterroot River Composite)

N. Total Acres Burned:
[6,502] NFS Acres [ ] Other Federal [ ] State [] Private

[1] Fire and severity acres calculated from 10/6 helicopter flight and final fire perimeter map.

O. Vegetation Types: Ponderosa Pine/Doug Fir/Beargrass, Ninebark, Mixed Conifer (Doug Fir/Lodgepole Pine/huckleberry), Lodgepole/Beargrass/Huckleberry, Subalpine Fir/Beargrass, Whitebark Pine/Subalpine Fir/Beargrass, Subalpine bunchgrass communities.

P. Dominant Soils: coarse textured granitic geology ranging from coarse sandy loams to loamy coarse sands

Q. Geologic Types: Bitterroot Mountain Range, Glaciated landscape, Decomposed Granite, Idaho Batholith

R. Miles of Stream Channels: All watersheds are within 4th-level watershed 17010205. Miles shown are within fire perimeter.

6th-level Watershed	Stream Miles
1203	7
1305	2.5

S. Transportation System

Trails: 4.0 **miles** **Roads:** 1.5 **miles** within fire perimeter

PART III - WATERSHED CONDITION

A. Burn Severity (acres):
Unburned: 1,626 acres (25%) **Low:** 1,625 acres (25%) **Moderate:** 2,276 acres (35%) **High:** 975 acres 15%).

B. Water-Repellent Soil (acres): approx. 2,113 acres (all of high severity, 50% of moderate severity acres = 33% of area within fire perimeter).

C. Soil Erosion Hazard Rating (acres): 3,251 **(low)** 2,276 **(moderate)** 975 **(high**)

D. Erosion Potential: 15.4 **tons/acre**[2] (Normal precip, 29.8 t/ac for 5yr RI precip year)

E. Sediment Potential: 8.64 **tons/acre**[3] **(**5,530 **cubic yards / square mile,** assumes 1T/cu yd**)**

[2] Results derived from Disturbed WEPP. Modeled high intensity fire in the uplands and riparian, sandy loam soil, 30-50% slope, 10% ground cover , 30% rock, and Stevensville modified climate. This is a worse case analysis.
[3] Results derived from ERMiT. Modeled high intensity fire, sandy loam soil, 30% rock, 50% slope, and Stevensville modified climate. This is a worse case analysis.

PART IV - HYDROLOGIC DESIGN FACTORS

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

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

C. Equivalent Design Recurrence Interval, (years): 2-10 years

D. Design Storm Duration, (hours): 6, 24 hours

E. Design Storm Magnitude, (inches): 1.2-3.2 inches

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

G. Estimated Reduction in Infiltration, (percent): 50%,

H. Adjusted Design Flow, (cfs per square mile): 27-46, varies with storm event

Post-fire flows were modeled using the NRCS Peak discharge analysis tool (Fire Hydro) for pre and post-fire conditions. Output is in stormflow rates (cfs), which includes only the flow component that is attributable to the storm itself: in forested watersheds, stormflow from short precipitation events is often negliglble. For 5 and 10 year precipitation events in burned watersheds, stormflow varies with the percentage and severity of burned area. "Adjusted" (post fire) flows in Kootenai Fire watersheds ranged from 1-4 cfsm additional flow, which is added to the flow already existing in the channel. Peak flows therefore depend on ambient flow plus stormflow. No culverts are located on Kootenai Creek below the fire area, although the Kootenai Cr Rd and Hwy 93 bridges are located about 2.3 and 3.8 miles below the fire area, respectively. Models such as this cannot address debris flows and floatable wood, which can cause debris jams and bridge overtopping. The distance below the fire area suggests that debris flows or jams would have low probability of affecting either structure.

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats (narrative):

Critical Values/Resources and threats: **No downstream threats to life or property from storm events were found in the Kootenai Creek Fire Area, however, the following threats were deemed significant:**

1. Road Crossings/infrastructure – post-fire hydrology will increase risk of road damage at 2 different stream crossings,;
2. Trail Prism infrastructue within High/Moderate Burn Severity – post-fire hydrology will increase risk of unacceptable erosion on 4 miles of trails.
3. Previously weed-free areas within High/moderate burn severity – loss of competing vegetation due to the fire will enable progressive migration of road & trail side weeds into new areas, some of which is within designated wilderness.

B. Emergency Treatment Objectives (narrative):

1. Install Trail Waterbars - The waterbars are intended to prevent accelerated erosion by diverting, discharging, and dissipating runoff flowing down trail tread. This protects watersheds by lessening the force and concentration of water flowing downslope. Hazard trees threatening workers and fallen trees blocking access would also be cut.
2. Clean Culverts – Sites were chosen based on partially plugged culverts below burned drainages, where a substantial unburned buffer reduced plugging potential but increased flows were still possible.
3. Invasive Species

    a. Weed Treatment would treat weeds along trail and road corridors that provide routes that invasive weed species could use to expand into the severely burned areas. New invaders and previously weed-free areas would be targeted.
    b. Weed Monitoring would track populations of invasive species for management purposes. Target areas for weed treatments would be identified and mapped. Monitoring will be focused on detecting new weed infestations within the fire perimeter. Monitor known and high potential infestation sites for noxious weed species in the burned area and determine need and extent of control treatment to be implemented. Monitor weed treatments results to ensure objectives are being met. During 2010, monitor spread of weeds into the burn area and any control treatments for effectiveness. Accurately map any new populations using GPS. Establish photo plots for documentation as needed.

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

Land NA **Channel** NA **Roads/Trails** 95**%** **Protection/Safety** NA

D. Probability of Treatment Success

	Years after Treatment		
	1	**3**	**5**
Land			
Noxious weed	80	85	85

treatment			
Noxious weed monitoring	85	NA	NA
Channel	NA	NA	NA
Roads/Trails			
Clean Culverts	90	90	95
Trail waterbars	90	90	95

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

F. Cost of Selected Alternative (Including Loss): $88,878

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	**[X] Soils**	**[ ] Geology**	**[X] Range**
[] Forestry	**[ ] Wildlife**	**[ ] Fire Mgmt.**	**[] Engineering**
[ ] Contracting	**[ ] Ecology**	**[] Botany**	**[X] Archaeology**
[X] Fisheries	**[ ] Research**	**[ ] Landscape Arch**	**[X] GIS**

Team Leader: Ed Snook

Email: esnook@fs.fed.us **Phone**: 406.363.7103 **FAX**: XXX

Specialty	Team Members
Hydrologist	Ed Snook
Soil Scientist	Cole Mayn (SO, BNF
Fisheries	Rob Brassfield (D-1, BNF)
Engineering/Roads	Jake Pintok (SO, BNF)
Heritage	Mary Williams (SO, BNF)
Fiscal Mgmt/Purchasing	Laurie Claar (SO, BNF), Tina Mainey(SO, BNF)
Recreation/Trails	Nick Hazelbaker, Deb Gale (D4 BNF)
Invasive species, Range	Gil Gale (D3, BNF)

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:

Noxious Weeds Control/Treatment (LT-1)

Objective:
The purpose of the treatment is to maintain ecosystem integrity within the Selway-Bitterroot Wilderness Area, where few noxious weed populations exist. Without treatment knapweed and other new invaders may spread into the severely burned areas. By reducing the amount of

weed seed along roads, dozer lines & trails in the area, native species will have an opportunity to take advantage of the post-fire nutrient flush without competition from noxious weeds.

Methods:
Treat fire access road areas with picloram (Tordon 22K) or clopyralid (Transline or Stinger) where there are known noxious weed populations. Selected sites include roadside spraying along FR740 where loss of ground cover has increased the risk of knapweed (Centaurea maculosa) spreading into the roadless and wilderness areas to the west. Effects of herbicide treatments at the proposed rates using clopyralid or picloram are addressed in the Bitterroot National Forest Noxious Weed Environmental Assessment, and all implemented treatments would be consistent with this document.

Channel Treatments: None

Road and Trail Treatments:

Install Water Bars - Trails (RT-1)

Objective
Approximately 4 miles of trail are expected to be at risk of deterioration from additional runoff and sediment from post-fire conditions. The threats are from upland slope erosion and mass soil movement being deposited on the trail. The trails were not designed for the increased flow that may occur from the fire. This may cause soil erosion on the trail surface and fill-slope. Failure of drainage culverts and water bars may cause stream capture onto trail surface area causing soil erosion, including loss of the trail by rilling and gullying. Affected trails are limited to: Trail 53 (Kootenai Creek Trail)

Methods
Methods for reducing this risk include water bars, which would be used to direct and divert flow to areas off the trail or to drainage ways. These treatments would reduce the risk of the trail washing out and transporting sediment to streams. Proactive treatment would be cheaper than remediation after damage.

Clean Culverts – Roads (RT-2)

Objective:
Two culverts of FR740 on a perennial stream are at risk of overtopping due to reduced flow capacity related to plugged outlets and floatable woody debris. Removing debris from the outlets would let culverts function as designed, restore flow capacity and protect the road prism from overtopping.

Methods:
Culvert outlets would be cleaned by hand crew using hand tools and chain saws.

Protection/Safety Treatments: None

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.)

Monitoring will be focused on first year effectiveness of BAER treatments. The question to be answered is did the BAER treatments provide the needed protection and rehabilitation of the burned area.

Noxious Weed Monitoring

Monitor known and high potential infestation sites for noxious weed species in the burned area and determine need and extent of control treatment to be implemented. Monitor weed treatments results to ensure objectives are being met. During 2010, monitor effectiveness of the spraying and establishment of new weed populations. Accurately map new populations using GPS and GIS. Establish photo plots for documentation.

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

			NFS Lands				Other Lands			All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
Weed spray	acres	58	30	$1,771	$0		$0		$0	$1,771
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$1,771	$0		$0		$0	$1,771
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$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										
trail waterbar	miles	2109	4	$8,436	$0		$0		$0	$8,436
clean culverts	pipes	372.5	2	$745	$0		$0		$0	$745
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$9,181	$0		$0		$0	$9,181
D. Protection/Safety										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation										
team costs				$2,408			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$2,408	$0		$0		$0	$0
F. Monitoring										
nox weed monitoring	acres	10.91	170	$1,855	$0		$0		$0	$1,855
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$1,855	$0		$0		$0	$1,855
G. Totals				$15,215	$0		**$0**		**$0**	**$12,807**
Previously approved										
Total for this request				**$15,215**						

PART VII - APPROVALS

1. */s/ Julie K. King* 10-20-09
   Acting Forest Supervisor (signature) Date

2. _____ _____
   Regional Forester (signature) Date