Date of Report: Oct 5, 2006

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

A. Fire Name: Jungle

B. Fire Number: MT-MCD-0656

C. State: Montana

D. County: Park

E. Region: Northern

F. Forest: Gallatin

G. District: Big Timber

H. Fire Incident Job Code: P1C5NR

I. Date Fire Started: August 12, 2006

J. Date Fire Contained: 50% contained on 10/5/06

K. Suppression Cost: $1,713,000 as of 9/27/06
L. Fire Suppression Damages Repaired with Suppression Funds
Fireline rehabilitated, (miles): 25.56

M. Watershed Number: 100700020 (5th HUC) includes 6th codes 908, 801, 802, 803, 804, and 805

N. Total Acres Burned: 25,812 as of October 5, 2006

NFS Acres(21,356) Other Federal (39) State (877) Private (3,536)

O. Vegetation Types: Engelmann spruce/subalpine fir (35%) lodgepole pine and Douglas fir (45%), Whitebark Pine (20%), grassland (10%)

P. Dominant Soils: Soils are medium textured with many rock fragments. Soils are commonly developed in sandstone, hard metamorphic rocks, and hard volcanic rocks. Soils are moderately productive and have low to moderate erosion potential. Soil productivity is generally moderate, but is low on some areas of shallow or extensively rocky soils. Dominant parent materials are alluvium and colluviums over residuum derived from

consolidated Tertiary volcanics. Primary landscape forming processes are stream down cutting, slope wash, and some debris flows.

Q. Geologic Types: Precambrian Belt series in upper 2/3, Mesozoic sediments and Quaternary deposits (alluvium and landslides) in the lower 1/3 of the fire. Cambrian Paleozoic sediments were the fire extended into the Main Boulder River.

R. Miles of Stream Channels by Order or Class: (1st order 108.2 miles; 2nd order 25.2miles; 3rd order 16.8 miles; 4th order 10.8 miles)

S. Transportation System

Trails: 22.3 miles Roads: 5.4 miles

PART III - WATERSHED CONDITION

Public Land

Burn Intensity* (acres): 20,650 (high) 3,872 (moderate) 1,291 (low/unburned)
Burn Severity* (acres): 12,906 high 5,450 moderate 5,450 low (as defined below)

* Burn Intensity refers to vegetation effects. "High" means all vegetation is killed, and is blackened. "Low" means most vegetation is not burned. "Moderate means there is a mosaic of "High" and "Low".

Burn Severity refers to soil effects or the degree of environmental change caused by fire. An area is classified as "high" burn severity if duff and litter layers have been completely consumed to ash such that little or no effective ground cover remains, surface soil is often loose, single grained with little sign of intact structure or fine roots. (It is important to compare to unburned areas, since sometimes this is the natural condition.) Soil structure is often destroyed, and fine roots in surface soil have been consumed. Surface soil which, prior to the fire, may have had stable granular structure can, after a high severity burn, be loose and single grained, due to volatilization of roots and binding organic compounds.

"Low" burn severity means that generally surface litter is consumed and duff deeply charred or consumed, but recognizable char and some unburned remnants of leaf or needle litter, root crowns, and duff may remain. Ash and char are present. Soil characteristics are not significantly visibly altered, other than a darkening of the first centimeter of soil. Though these soils are bare, they will resprout plants within weeks. They do contribute, however, to watershed response.

"Moderate" burn severity is a mosaic of "High" and "Low" burn severity.

B. Water-Repellent Soil (acres): 12,906

C. Soil Erosion Hazard Rating (acres): 5,450 (low) 20,362 (moderate and high)

D. Erosion Potential: 12.8 ton/acre

E. Sediment Potential: 1619.2 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3 grass/shrublands, 25 understory/conifer

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

C. Equivalent Design Recurrence Interval, (years): 5 (50 year unburned event)

D. Design Storm Duration, (hours): 6 and 1 hr

E. Design Storm Magnitude, (inches): 1.5 (6 hr), 0.92 (1hr)

F. Design Flow, (cubic feet/second/square mile): 11

G. Estimated Reduction in Infiltration, (percent): 29.7

H. Adjusted Design Flow, (cfs per square mile): 164

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The main value at risk from the Jungle Fire is the 22.3 miles Gallatin NF trail system within the fire perimeter, risk of weed invasion, and grazing of non-NF livestock on burned and deferred grazing lands on the Gallatin NF.

Water Resources**:** The Jungle Fire burned about 25,812 acres across primarily middle and upper elevation zones in 6 - HUC6 watersheds in the HUC5 watershed 100700020 (West Boulder) tributary to the Main Boulder River (tributary of the Yellowstone River).

The Jungle Fire started on 8/12 (lightning) and burned for several weeks in a mosaic pattern around Falls Creek in the West Boulder River drainage of the Absaroka Bearooth Wilderness. The fire weather and wildfire response changed dramatically in September when the Jungle Fire had major flare-ups on September 12 and 13 burning about 60% of the final acreage with extensive high burn intensity runs. The left photo is of the massive 9/13 plume which rose an estimated 40,000 feet.

The Jungle Fire has about 80% high burn intensity, and 20% low and moderate burn intensity across primarily Lodgepole pine, Douglas fir, subalpine fir, Whitebark pine, and some areas of juniper and grassland. The fire burned in primarily roadless areas with only a few miles of roads (5.4). The primary value at risk is 16.3 miles of trails with predominantly high burn intensity areas and extensive trail related damage and erosion increase potential.

The West Boulder River corridor was the main focus of BAER field examinations. Most of the soils examined displayed hydrophobic conditions in burned areas. Areas of high burn intensity examined 2 weeks after a rain event of 9/18 - 9/19 had very limited infiltration below a wet ash layer indicating infiltration reduction in the burned areas. The Jungle Fire is about 70% within the Absaroka Beartooth Wilderness, hence the high ratio of trail treatments. Stormflow runoff response could be robust through the remainder of 2006 and through the summer of 2007 due to reduced ground cover. During the winter of 2006 /2007, fire induced water repellency is expected to lessen, particularly after spring 2007 greenup. Vegetative recovery is expected to be moderate during the summer of 2007 since high burn intensity areas on the Gallatin NF generally need 2-3 years to establish pre-fire vegetation cover. In high intensity burn areas, vegetation mass will need to be compressed by snow onto the soil during the winter of 2007/2008 to begin to form a protective litter layer and expected substantial storm response decline in 2008. Needle cast potential (which helps initiate litter re-establishment) is relatively small on the Jungle Fire due to the large amount of high intensity burn.

The Jungle Fire is primarily in the West Boulder River drainage and has large scale erosion and sediment increase potential. The primarily drainages include the West Boulder River, Jungle, Thimble, Trapper, Basin, Lost, Grouse (West Boulder River tributaries), Contact Creek and parts of the Main Boulder River. Sediment increase in the West Boulder River were modeled with the R1R4 model with an estimated pre-fire sediment yield of 6% over natural increasing to 230% over natural in 2007, 54% in 2008, 16% in 2009, 8% in 2010, and reducing to near pre-fire levels by 2011. Peak flows were calculated for high intensity burned watershed using the NRCS (TR-20) Fire Hydrology (2002) spreadsheet as well as adjustments to Parrott (2004) USGS regression equations. Results for the Fourmile Creek watershed, which has considerable trail exposed to erosion processes from the fire, include a Q_5 NRCS method peak flow increase from pre-fire 11 cfs to post fire of 164 cfs. The USGS method was used to calculate a Q_5 peak flow increase for the entire West Boulder Watershed at an accounting point just below the down valley fire perimeter (119mi2). The USGS analysis indicated a pre-fire Q_2 of 489 cfs and a post fire Q_2 of 634 cfs. The USGS method also calculated a pre-fire Q_5 of 793 cfs and a post fire Q_5 of 1028 cfs. The storm flow analysis indicates that localized drainages, less than 5000 acres in size are particularly vulnerable to sharp increases in peak flows due to localized (convective cells) high intensity rain events of 15 minutes to at most 1 hour duration. The National Weather Service in Billings has validated a 5-10 mi^2 size for large convective mid summer cells in the area. The entire West Boulder drainage is not likely to be impacted by a single storm cell and flood flows are more likely to result from frontal storms which do not have as high of per/acre storm flow response as localized convective storms. Several of the 1st and 2nd order channels to the West Boulder River have sufficient material loading and slope to be active debris flow corridors if rainfall intensity in 2007 is sufficient. NRCS Engineering staff ran HEC-RAS cross sections at several houses along the West Boulder River below the fire perimeter to compare to the USGS method flood flow analysis and found that all structures had sufficient separation from the active channel and adjacent floodplain to not be at risk to at least the Q25 post fire event of 1800 cfs.

West Boulder river within the Jungle Fire near the confluence with Basin Creek. For about a four mile segment of the West Boulder River, the fire had high burn intensity in the entire canyon including the streamside areas of the West Boulder River. High intensity burn of such an extensive canyon area is unprecedented on the Gallatin NF.

Cultural features. There are no known cultural features at risk in this area.

Yellowstone Cutthroat Fishery: The West Boulder River stream system does not have known populations of pure Yellowstone Cutthroat trout. Potential adverse fish habitat impacts are massive from increase sediment and potential debris flows but no specific fish habit BAER treatments are proposed due to the massive scale of the fire and the lack of treatable area above a pure YCT population.

Access routes and road infrastructure: About 5.4 mile or roads occur within the fire perimeter along the northwest side. None of the roads were judged to be vulnerable to damage from increase erosion and hence no road treatments are proposed.

Trails: Three National Forest system trails are located in the interior of the Jungle Fire perimeter on the Gallatin NF. Safety concerns are relevant regarding hazard trees and/or tread failure. The Jungle Fire has increased the potential for the National Forest system trails to be at risk of deterioration and also as an avenue for an increase in sediment from post fire conditions being deposited into streams. Approximately 16.3 miles of Gallatin National Forest trails are expected to be at risk of concentrating flow and causing erosion and sedimentation. The first mile fo the West Boulder Trail is located in a Cambrian sediment wetland area which is at risk from damage from trail tread and turnpike erosion. A 1300' section of trail had been improved with turnpike construction but the Jungle Fire has burned the turnpike retainer logs and 2 culverts. Mobilization of the turnpike fill into the wetlands and drainages is imminent unless the retainer logs and culverts are replaced. Material for the retainer logs will need to be hauled in since the area was very heavily burned and onsite material is not available. The section is heavily used by pack stock and now has significant safety hazards which will be aggravated if the turnpike retainers are not replaced. The West Boulder Trail is a major access corridor to the Absaroka Beartooth Wilderness with a campground, USFS Guard Station, several outfitters, and heavy use. This section of trail is confined to a wetland area between the West Boulder River and very steep, rocky sideslopes to the east not appropriate for trail relocation. The proposed turnpike construction is the minimal treatment necessary to protect users, the values associated with the trail infrastructure investment, and prevent additional degradation that could be directly caused by the trail if not stabilized. The cost of repairing the turnpike section with emergency stabilization BAER funds is is considerably less than the cost to repair trail and resource damages (turnpike fill erosion, wetland damage, stream sedimentation etc.) after they occur. To facilitate completion of this work in 10/06 the cost of the treated retainer logs will be financed with non-BAER funds (CMTL trails - $26,104) so that only the cost of culverts, labor, and admininstration is being requested with BAER funds.

A substantial threat occurs from upland slope erosion being deposited on Jungle Fire trails then conveyed to stream channels. This will cause soil erosion on the trail surface and fill-slope and. considerable sediment increase. Insufficient numbers of and failure of drainage dips and water bars could cause stream capture onto the trail surface area, then discharging causing soil erosion, including loss of the trail by rilling and gullying.

The BAER team did not recognize any values at risk for the short section of the Grouse Creek trail on private property.

Rangeland Vegetation: The burned area encompasses portions of four Forest Service grazing allotments and affects one permit holder. Fences and stock water developments within the fire perimeter have experienced varying degrees of damage. The Jungle Fire will have both short and long term impacts to livestock management on the allotments and on adjacent private lands. An emergency exists since the Gallatin National Forest does not have control over adjacent landowners grazing management after the Jungle Fire. Rangeland recovery and critical habitat recovery (grizzly bear and grey wolf) are emergency values at risk found on Gallatin National Forest lands in the fire area.

Invasive Plant Species: Approximately 50 acres of known noxious weed infestations occur within and adjacent to the Jungle fire area on the Gallatin NF including leafy spurge, yellow toadflax, and sulfer cinquefoil. Most of

these known infestations occur in the north side of the fire adjacent to private lands. The Jungle Fire has greatly increased the potential of expansion of these weed infestations in the Gallatin NF. The new seedbed created by the burned landscape is a vector for weed spread. Vulnerable vegetation types including woody draws, meadows, timbered stands, and the northern part of the Absaroka Beartooth Wilderness. The Big Timber District has an ongoing program for treating the approximately 50 acres of weeds in this area that are found primarily along the allotment perimeter areas and generally only accessible by horsepack and backpack. BAER funds are being requested to treat and monitor expansion of these weed infestations.

B. Emergency Treatment Objectives:

Invasive Species: Noxious weeds pose a threat to native plant re-establishment if permitted to set seed, and spread into vulnerable areas. The primary objective is to reduce the risk of expansion of existing infestations and allow burned plant communities to recover more rapidly. An additional objective includes allowing natural regeneration of native plant communities affected by the burn and prevent loss of biological diversity and ecological stability on both public and private lands as a result of weed infestations. This will be accomplished by applying herbicide and/or cultural treatments on known noxious weed infestations (50 acres) on the Gallatin NF portions of the Jungle Fire and monitor for additional expansions. In addition 100 acres of burned heavy timbered areas on the north end of the fire will be seeded (compeditive seeding) to reduce weed invasion.

Rangeland Vegetation: Allow for rangeland recovery by requiring grazing deferment on all Gallatin NF grazing allotments during 2007 on the Jungle Fire. Construct temporary drift fencing around areas where livestock grazing on private land are likely to cross the GNF boundary and graze on deferred NF burned areas.

Trails: Reduce trails as potential sources of erosion and sediment and reduce damage to the trail system for accelerated Jungle Fire erosion processes. BAER crews need to access trails to install erosion control devices and provide a minimum but safe trail surface. Total replacement of tread to pre-fire conditions is not appropriate with BAER funds but should be funded with trail funds. A total of 16.3 miles of Gallatin National Forest trails are expected to be at risk of deterioration and substantial sources of additional runoff and sediment unless emergency measures are taken. Post-fire hazard trees, are considered a safety risk to BAER rehab crews. The 3 trails at risk are Trail #41 – West Boulder Trail #18 – Great Falls Creek, and Trail # 14 – Grouse Creek. Turnpike stabization on the West Boulder trail will be financed largely with Trail funds (CMTL) with BAER funds for culvert replacement and labor/administration.

Safety concerns are relevant regarding hazard trees and/or tread failure. Warning signs need to be installed at the West Boulder trailhead. These sign will provide information for BAER rehab crews about the hazards of the burned over landscape.

To ensure BAER rehab crew safety, a number of post-fire hazard trees will need to be removed during rehabilitation of system trails leading into the burned area. The Safety Handbook and the Fire Suppression Manual, clearly state that when hazards to these workers are recognized, they should be immediately dealt with and paid with fire suppression or BAER funds. The Jungle Fire has a high density of hazard trees such as this Douglas fir about 2 miles south of the fire perimeter along the West Boulder Trail.

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

Land **60** % Channel **na** % Roads/Trails **70** % Protection/Safety **na** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land (temp fence const)	**60**	**80**	**90**
(weed treatment)	**50**	**70**	**90**
Channel	**na**	**na**	**na**
Roads/Trails	**70**	**80**	**90**
Protection/Safety*	**na**	**na**	**na**

E. Cost of No-Action (Including Loss): $586,424

F. Cost of Selected Alternative (Including Loss): $279,684

G. Skills Represented on Burned-Area Survey Team:

[x] Hydrology	**[ ] Soils**	**[x] Trails**	**[x] Range/weeds**
[ ] Forestry	[ ] Wildlife	[ ] Fire Mgmt.	**[x] Engineering**
[ ] Contracting	[ ] Ecology	[ ] Botany	**[ ] Archaeology**
[ ] Fisheries	[ ] Research	[ ] Landscape Arch	[ ] GIS

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H. Treatment Narrative:

Land Treatments:

Invasive Species Treatments: Apply herbicide and/or cultural treatments on known noxious weed infestations and sites highly susceptible to weed invasion within Jungle Fire area. Noxious weeds pose a threat to native plant re-establishment if permitted to set seed and spread into vulnerable areas. Noxious weeds typically have a competitive edge on native species re-establishment. Vulnerable areas include sites with ground disturbing fire suppression activities, slopes with high burn severity, and/or high risk early succession sites already having a dense noxious weed cover or void of desirable perennial plant cover. A scattering of spotted knapweed, yellow toadflax, sulfur cinquefoil, oxeye daisy, musk thistle, hounds tongue, and Canadian thistle exits on the 50 acres of weed infestations on the Gallatin NF. Ground herbicidal application appears the best defense to limiting weed seed maturity on those sites. An additional 100 acres will be seeded with aerial seeding in heavy timber types (competitive seeding) to reduce noxious weed encroachment.

a. Treat all spots within the 50 acres of know noxious weed infestations where noxious weeds are present or anticipated to re-sprout. Follow-up treatments will be required for several years while adequate perennial plant composition is being re-established.
b. Herbicide applications will be a combination of horse pack and backpack spot based treatments. All treatments will comply with GNF Weed Treatment Weed EIS provisions (2005).
c. Aerial seed 100 acres of heavy timber types on the north end of the fire.
d. Livestock grazing will be deferred at least one year and preferably two growing seasons where seeding occurs. Temporary fencing may be required where more than two years deferred grazing

is necessary.

e. Re-establish bio-control agents (non-BAER) hose populations of noxious weed sites where herbicidal control is not a viable tool such as along riparian corridors. Many of the previous insectory sites where lost due to the Jungle Fire.

f. Support efforts with the adjacent private lands containment boundary. This buffer will require close coordination with various state, private and federal agencies.

Rangeland Vegetation Treatments: The attached table identifies the location and extent of known fencing needs (9.25 miles) as a result of Jungle Fire impacts. Emergency BAER fencing will exclude livestock from entering burned National Forest areas from adjacent private lands. Reconstructing fences will allow burned areas to recover more rapidly. Keeping private trespass cattle coming off GNF allotments will also reduce the threat of weed spread by leaving herbaceous vegetation to compete against weed seedlings and plants. Protection of GNF allotments from private cattle and allowing vegetation recovery will also contribute to recovery of burned grizzly bear and grey wolf habitat in the West Boulder and Davis Creek drainages.

This BAER fencing proposal does not include interior fences that are used as part of Forest Service grazing allotment. Reconstruction and repair of these fences will be pursued under non-BAER funding sources as well as non-BAER fencing and water developments lost or damaged due to the Jungle Fire. The cost difference between total and eligible BAER fencing needs (temporary drift fence) is expected to be funded through contributions from other sources (landowner, NRCS programs, and other funding sources). The table below shows a per mile cost for fence replacement. Total fence replacement cost is $98,563 if which only $37,000 or 38% is being requested with BAER funds for temporary drift fence.

STRUCTURAL RANGELAND DEVELOPMENTS: FENCES: Billings area base costs	**Cost / Unit**	**Unit**	**Quantity**	**2006 Cost**
One Mile of 4-WIRE BARBED on 12 FOOT CENTERS, 8' single brace every 250 feet with double rapped barbless wire, NO STAYS. Labor-Equip. Cost/Mile -- Labor costs based on the following assumptions: 1) constructed on rolling topography on moderately rocky ground where access by heavy equipment is possible, 2) 2 hours/brace (not including backhoe/operator time), 3) 8 hours/wire, 4) 5 minutes/steel t-post, 5) 2 minutes/fence clip, 6) 16 2/3 hours miscellaneous.				
12 1/2 Gauge Commercial Barbed Wire	30.98	Roll	16	$604.46
5 1/2 Foot Steel T-posts 1.33 Heavy Duty with Clips	2.23	Each	426	$1,158.46
12 1/2 Gauge Commercial Barbless Wire	30.37	Roll	1.5	$37.36
7 Foot x 6 inch .40 CCA Treated Set Post	6.99	Each	42	$358.01
8 Foot x 5 inch .40 CCA Treated Brace Post	7.65	Each	21	$195.91
No. 8 Ring Shank Spikes	45.05	50# Box	0.25	$13.73
2 inch Galvanized Staples	33.29	50# Box	0.25	$10.15
Material Cost/Mile				
Commercial Labor Cost	20	Hrs / Mile	183	$4,463.20
Commercial Backhoe w/Operator [Hrs/Mi 21 braces @ .75 hr/brace]	65	Hrs / Mile	15.75	$1,248.41
Commercial Backhoe Move-In/Move Out	400	per job	1	$615.82
Labor-Equip. Cost/Mile				
Total Cost/Mile				$8,705.50

Specifications per Montana State Law definition of a legal fence and USFS policy per Forest Service Handbook 2209.22 R1 and USDI BLM, USDA FS, 1988. Fences. July 1988. 2400-Range; 8824 2803.

There is a desire to replace, in kind, hard line fence needs rather than only using temporary drift fence usually allowed under BAER funding. Partnerships are being pursued with landowners and NRCS to help ensure that hard line fence is reconstructed and minor repair is completed. This BAER request only covers 38% of the total hard line fencing cost which is the cost of temporary drift fence. Other fund sources will contribute to the remainder of the total cost. In addition to fence construction, fence condition survey funds were requested to check for potential additional temporary drift fence construction not included in this initial BAER request for the Jungle Fire.

Trail Treatments: Three trails have been heavily impacted by the Jungle fire including:

#41 – West Boulder Trail
#18 – Great Falls Creek Trail

#14 – Grouse Creek Trail

Private Property – The BAER team did not recognize any values at risk for trails on private property.

Treatments that are being proposed for each trail are:

1) Hazard tree removal for BAER rehab crew safety.
2) Installation of drainage structures such as check dams, water bars and drain dips as minimally necessary for BAER crew access and to prevent damage which would be more costly if not stabilized with BAER funds.
3) Tread stabilization for surface drainage and to a minimum level necessary for safe BAER crew access.
4) Warning signs installed at trailhead to inform the BAER rehab crew about entering a burned landscape and the associated hazards.

These treatments are designed to reduce erosion, runoff and sediment delivery and are being recommended at varying levels for each trail, with a number of factors taken into consideration. These factors are burn intensity, burn severity, soil type and structure, trail grade, side slope, alluviums, topography, vegetative cover, watersheds, proximity to critical fish habitat, current trail use, expected use, and travel planning. The proposed Jungle Fire BAER trail improvement were developed recognizing that BAER funds are not appropriate to fully restore trails for public use, but to protect BAER treatment crew access, minimal public safety, and reduce resource damage which would be more costly to repair if the BAER treatments are not done. In some cases emergency work is being shared with other funding sources. For example the turnpike stabization on the West Boulder trail will be financed largely with Trail funds (CMTL-$26,104) with BAER funds for culvert replacement and labor/administration.

Immediate Needs **-** Within the Jungle Fire burn area, National Forest trails will require immediate emergency assistance to reduce redource damage – primarily erosion and sedimentation, and protect trail prism for safe travel for BAER rehab crews.

1. Removal of hazard trees and for other treatment access the clearing of down trees.
2. Install adequate drainage structures to prevent erosion of trail prism from upslope runoff likely to occur.
3. Re-tread, repair and stabilize trail prisms and turnpikes to provide for safe travel for BAER rehab crews.

Channel Treatments: No treatments proposed.

Protection/Safety Treatments: Trail drainage, hazard removal, and tread stabilization which provides public and BAER implementation worker safety as well as erosion/sediment reduction.

I. **Monitoring Narrative:**

Invasive Weed Monitoring : Monitor known and high potential infestation sites for noxious weed species in the burned area, emphasizing areas of existing infestation on National Forest land, to determine need and extent of control treatment to be implemented with BAER funds. Methods include visual identification and GPS mapping. This will occur in the summer of 2007.

Storm Patrol: Roads and the lower section of the West Boulder Creek Trail #41 will have numerous drainage crossings and road culverts that have been affected by post fire sediment runoff. In the event of heavy rain, a patrol will be sent out inspect drainage road and trail crossings to identify problems before they cause facility problems. The purpose of the storm patrol monitoring is to decrease the risk of trail damage, particularly at culverts and drain dips. Trail drainage malfunction during a heavy rain event could result in safety hazards.

Road and Trail Treatments. Trails will be inspected for two years following the installation of BAER treatments. Effectiveness of treatments and the need for additional treatments will be determined via visual inspections.

Stream Reference: A stream reference site will be established on the Main Boulder River at the downstream end of the Jungle Fire perimeter near the West Boulder Guard Station. Pre and post runoff channel cross-sections and gradients will be surveyed. Pre and post runoff Wolman pebble counts and fish spawning fines will be measured. This monitoring will be augmented with sediment and bedload monitoring (non-BAER funds) during the snowmelt runoff of 2007 to establish post fire sediment yields and compare to extensive pre-fire sediment monitoring in the East Boulder River. Data will also be collected during the fall of 2007 to measure post summer stormflow effects on channel geomorphology of the West Boulder River.

Photo from bridge (stream reference site) at West Boulder Station viewing upstream into the Jungle Fire area. The effectiveness of BAER treatments and overall geomorphic response of the Derby Fire will be monitored with an elevation XS's, and stream substrate monitoring. This monitoring will be augmented with non-BAER sediment water quality monitoring in 2007 to measure sediment responses of the West Boulder River to the Jungle Fire and BAER treatments.

Part VI – Emergency Stabilization Treatments and Source of Funds Initial Request

			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 treatment	AC	174	50	$8,720	$0		$0		$0	$8,720
aerial seeding of weed areas	AC	95	100	$9,500						$9,500
temporary drift fence	miles	4000	9.25	$37,000	$0					$37,000
complete temporary fence survey	LS	2400	1	$2,400	$0					$2,400
				$0						$0
Subtotal Land Treatments				$57,620	$0		$0		$0	$57,620
B. Channel Treatments										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
ROADS - no road treatments										
TRAILS				$0	$0		$0		$0	$0
install/maintain drainage structures	each	183	282	$51,502	$0		$0		$0	$51,502
hazard trees	each	58	275	$15,858	$0		$0		$0	$15,858
route marking	miles	1	2180	$2,180	$0		$0		$0	$2,180
tread stabilization	miles	2	10260	$20,520	$0		$0		$0	$20,520
turnpike stabilization	feet	7	1300	$8,460	$26,104		$0		$0	$34,564
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$98,520	$26,104		$0			$124,624
D. Protection/Safety										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures					$0		$0		$0	$0
E. BAER Evaluation										
assessment (person days)	DAYS	700	15	$10,500	$0		$0		$0	$10,500
travel costs and misc.	LS	1	82	$82	$0		$0		$0	$82
implementation administration		500	20	$10,000	$0					$10,000
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$20,582	$0		$0		$0	$20,582
F. Monitoring										
storm patrol	each	400	2	$800	$0					$800
trail condition	each	1000	1	$1,000						
weeds	AC	78	50	$3,920	$0					
stream reference	each	4000	1	$4,000						
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$9,720	$0		$0		$0	$9,720
G. Totals				$186,442	$26,104		**$0**		**$0**	**$212,546**
Previously approved					$0					
Total for this request				**$186,442**						

PART VII - APPROVALS

1. */s/ Rebecca Heath*
   Forest Supervisor (signature) 10/5/06

2. _____ _____
   Regional Forester (signature) Date