BURNED AREA REPORT

BEAR GULCH II FIRE
OLYMPIC NATIONAL FOREST
HOOD CANAL RANGER DISTRICT

Date of Report: 11/14/06

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: Bear Gulch II

B. Fire Number: WA-OLF-000215

C. State: WA

D. County: Mason

E. Region: 06

F. Forest: 09

G. District: 01

H. Fire Incident Job Code: P6B6U8

I. Date Fire Started: 07/26/2006

J. Date Fire Contained: 11/08/2006 (100% contained)

K. Suppression Cost: $1.8 million (11/08/2006)

L. Fire Suppression Damages Repaired with Suppression Funds----
1. Fireline waterbarred (miles): 0.85
2. Fireline seeded (miles): N/A
3. Other (identify): N/A

M. Watershed Number: 1711001701 - Skokomish River

O. Total Acres Burned 1,110
NFS Acres (1,100) Other Federal (0) State (10) Private (0)
480 of 1,100 FS acres in Mt Skokomish Wilderness

O. Vegetation Types: Warm, somewhat dry, low to moderate productivity. Western Hemlock (dry)..50%; Western Hemlock (wet)…30%; Non-forested/rock outcrop……15; Pacific Silver Fir….5%

P. Dominant Soils:

Dominant soils consists of moderately deep to bedrock, well drained soils that formed in colluvium from marine basalt and associated volcanic rocks on mountain slopes and glaciated mountain slopes.

Other soils consists of very shallow to bedrock, well drained soils formed in colluvium from marine basalt and associated volcanic rocks on mountain slopes. Slopes are 60 to 100 percent. Minor components are soils that are deep and very deep, well drained that formed in colluvium from marine basalt and associated volcanic rocks on mountain slopes.

Q. Geologic Types : Crescent Formation (Tcb). Massive flows, pillows and breccia. Shears and fractures are common. Most of the fire perimeter is underlain by marine volcanic bedrock. Deep glacial and alluvial deposits occur in on lower footslope/toeslopes above the lake. Slopes are controlled by rock structure. Soils forming slope deposits over bedrock are shallow, rocky, and generally non-plastic. Downslope transport occurs as rolling and falling of individual particles. Infrequent larger slides occur as flows, transporting saturated slope deposit materials.

R. Miles of Stream Channels by Order or Class:
I -0- II 0.58 III 2.7 IV 0.51

S. Transportation System

Trails: 2.9 miles Roads: 2.5 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 600 (low) 340 (moderate) 170 (high)

*Soil burn severity was delineated on an 8/16/06 reconnaissance flight and fire size (400 acres). Additional mapping was developed through Lake Cushman boat and ground reconnaissance.

B. Water-Repellent Soil (acres):

*None observed

C. Soil Erosion Hazard Rating (acres):
200 (low) 400 (moderate) 500 (high)

D. Erosion Potential: ___ tons/acre

E. Sediment Potential: ____ cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): ____

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

C. Equivalent Design Recurrence Interval, (years): ____

D. Design Storm Duration, (hours): ____

E. Design Storm Magnitude, (inches):

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

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

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

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

1. Threats to Human Life, Safety and Property

The Bear Gulch II Fire burned primarily on very steep valley mountain sideslopes and over-steepened glacial trough walls, where rock fall has been relatively frequent in the past. A significant increase in large rocks and trees have fallen onto FSR2400-000 during the fire. Observations of numerous boulders comparable in size to small cars landing onto the roadway and then rolling into Lake Cushman. The fire, though fairly low in intensity, will also result in substantial tree mortality. The risk of future hazards occurring is high as these trees and their roots decompose, fall, dislodging more rocks and debris onto the roadway and Mt. Rose trail. This will pose a greater threat to public safety and property when the road and trail are re-opened.

Safety for the public, BAER Team and other government employees is the greatest concern along FSR 2400-000 (2.5 mi) and the Mt Rose Trail (2.9 mi). The fire burned on very steep slopes (70 to 90 percent) above the road and across the trail. This area is a national, regional and local attraction for recreationists. A major portal to Olympic National Park, Staircase Ranger Station in recent years has provided the only access to the eastern portion of the park. Recreation use has increased significantly since 2000, when the Dosewallips Road access to the park experienced a major washout. Additionally, FSR 2400 also provides primary access to 29 private residences (primarily summer homes). The Lake Cushman area along FSR 2400 also offers numerous dispersed recreation opportunities to the public on NFS lands (picnicing, swimming, hiking, rock climbing) in the immediate vicinity of these hazardous areas. Recreationists and homeowners will continue to demand access and use via FSR 2400.

A gate was installed on FSR2400 in late July soon after the fire started, when rocks first began falling onto the road. The closure is before the trailhead, and outside of the fire perimeter. A substantial amount of rock and debris has accumulated on the road surface. The section of road includes about 2.5 miles between Mount Rose Creek and the causeway over Lake Cushman. Within this section, about 3,500 feet (0.7 miles) was identified as high hazard; there are 4 specific areas identified in this area.

The Forest plans to complete a stability and hazard assessment for the area and the road corridor this winter. It is reasonable to continue the road closure until the hazards can be fully evaluated and/or the frequency of rockfall returns to the background (historic) level. Our plan is to monitor rockfall into the winter by measuring accumulation on the roadway. We expect to observe continued activity through the winter weather cycle with an observable reduction in rock and debris fall in the spring. The goal is to observe a decline to background or historic level of activity, remove debris and

identified or remaining hazard trees, and re-open the road in the spring. The final conclusion and timing will be dependent on the results of our monitoring and assessment. The Forest will maintain the road closure with the expectation that it will be re-opened in the spring 2007, possibly April or May.

2. Critical Natural Resources

Invasive Plants: A very unique threat to biodiversity and wilderness values from this fire is the presence of seven species of invasive plants along FSR 2400 in the fire perimeter. These invasive plants include: Canada thistle, bull thistle, Scot's broom, herb Robert, common St. Johnswort, tansy ragwort and evergreen blackberry. None of these species were burned along the roadway, and will likely provide seed source for spread to additional open niches provided by the Bear Gulch Fire. It is expected that seeds of these invasive plants will spread into the lower slopes of the fire area above these sources, and infest the disturbed areas where the fire denuded the native vegetation and exposed soil area.

An EIS that addressed herbicide use to control noxious weeds in this area has been completed by the Forest Service. Additional Forest Service direction related to wilderness and BAER is found in FSM 2323 (specifically FSM 2323.43b) and in FSH 2509.13 section 26.6.

B. Emergency Treatment Objectives:

The primary objective of the proposed treatments are to provide for public safety for pedestrians, vehicle occupants, and recreational users along FSR2400 road corridor and Mt Rose Trail through the Bear Gulch II fire area. Objectives are also to assist with the natural recovery and minimizes on-site damage to values at risk. The non-structural land treatments proposed for weed control helps to maintain site productivity and ecosystem function by inhibiting weed establishment and spread. This is done by Integrated Weed Management that includes manual and chemical control methods in the burned areas in the infested portion along FSR 2400. An invasive plant monitoring treatment will be applied to survey for any new populations on FS lands. Monitoring will also be used to assess the effectiveness of weed treatments on lands where weeds are controlled.

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

NOTE: Initial public safety has been addressed through CFR and gate closure on FSR2400 outside of the fire perimeter and through signing.

Land _ % Channel ___ % Roads/Trails __ % Protection/Safety ___ %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80%	75%	75%
Channel	N/A	N/A	N/A
Roads/Trails	90%	90%	90%
Protection/Safety	60%	60%	60%

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

F. Cost of Selected Alternative (Including Loss): **$179,780**

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Scott Hagerty, Soil Scientist, Olympic National Forest

Email: shagerty@fs.fed.us Phone:360-765-2249 FAX:360-765-2202

H. **Treatment Narrative:**

Overall Goal of Proposed BAER Treatments: To provide for safe public travel and use by the public and for BAER implementation treatments, and to control and reduce the spread of noxious weed populations, thereby enhancing native plant recovery.

Land Treatments:

Purpose – To discourage the rapid spread of noxious weeds and encourage natural vegetation recovery

Noxious Weed Control and Monitoring Treatments: To reduce the post-fire potential for significant invasive plant population increases in the burned area and hence to encourage recovery of natural vegetation. A total of 7 species of noxious weeds (Canada thistle, bull thistle, Scot's broom, herb Robert, common St. Johnswort, tansy ragwort and evergreen blackberry) were identified within and adjacent to the Bear Gulch II Fire area. It is expected that these and other invasive plants will increase in the fire area. Treatments are intended to maintain ecosystem health by reducing weed populations and preventing spread-- thereby encouraging natural vegetation recovery. In order to be successful, new populations need to be located quickly and prevented from spreading. Three years of effectiveness monitoring and maintenance of treatments will be necessary.

Treatment #1-Integrated Weed Management of Noxious Weeds : Early spring control of known and newly discovered populations of Canada thistle, bull thistle, Scot's broom, herb Robert, common St. Johnswort, tansy ragwort and evergreen blackberry and other Invasive plants by hand pulling or chemical treatment (where appropriate and allowable). Treatments will be focused along FSR2400 road near where noxious weeds can migrate into fire perimeter with high burn severity and exposed soil.

Treatment # 2-Monitor/Survey: Invasive Plant populations: This treatment provides for fall and spring surveys of invasive plant populations. Monitoring will occur over a 3 year period.

Channel Treatments: None Proposed

Roads and Trail Treatments:

Purpose – To provide for safe motorized vehicle access to implement BAER treatments (hazard tree abatement, concrete block protection structures) in spring 2007, in addition to insuring adequate drainage of ditchlines and culverts. The fire has removed much of the woody material and duff in the moderate to high severity areas along this trail. In addition, the trail was used in several locations as the fireline, and tread and drainage features have been rendered barely functional and are unsafe for the public.

Treatment #1 - Road Clearing and Drainage: Complete initial re-opening of 2.5 miles of FSR2400-000. Expected that extensive rocks, trees and possible debris flows will cover the roadway in numerous locations. Includes spot ditch and culvert cleaning where needed.

Additional concrete block or jersey barrier installation may be requested for installation near the outside edge of road in high recreation use, high hazard areas. Purpose of these structures would serve as parking barriers to discourage use and length of stay should planned barriers fail to stop rockfall.

Treatment # 2 - Trail Drainage, Tread and Logout: Felling of hazard trees, install drain dips, improve tread and logout in a few areas along the 2.9 miles of Mt. Rose Trail, in order to provide access for BAER treatments and to reduce the potential for runoff concentration from anticipated fire effects. Trail work will follow established National Forest trail standards (covers the 3 years for BAER treatment and maintenance). Spot tread repair and drain dips will be installed to reduce runoff. Several fire-killed trees are likely to fall and block trail access. Trail log out will be necessary on approximately 2.0 miles of trail in order to gain access to the sections of trail that need drainage and tread improvements.

Protection/Safety Treatments:

Purpose – Purpose is to provide for public safety (and BAER treatments) for pedestrians, vehicle occupants and recreational users along FSR2400 road corridor through the Bear Gulch II fire area (2.5 mi). FSR2400 is the route that provides the only vehicle access into a number of private residences along Lake Cushman, and is also the access into the Staircase area of Olympic National Park.

Treatment #1- Concrete Block Barrier Installation: Install a series of pre-cast concrete blocks in the areas of highest rockfall frequency along FSR2400. These will be placed along the inside edge of the road to prevent fall rocks from hitting vehicles and/or pedestrians. Each block is 2.5 feet high and 5 feet long. In the worst areas blocks will be stacked up to 3 high. An initial estimate of 3465 feet of roadway has been identified as high hazard with an increase in post-fire rockfall. Assessments conducted since that time have resulted in an estimated 1525 feet of roadway had large accumulations of rock and debris, and identified for treatment using these barriers.

Treatment #2 – Hazard Tree Abatement: Hazard tree assessment and removal of approximately 75 fire-killed trees that are both hazardous to the public along 2.5 miles of FSR2400. Includes felling, bucking, and removal of those trees that fall or slide onto FSR2400 or are deemed hazardous on the over-steepened hillslopes. Additional removal of hazard trees would be assessed and felled over a 3 year period.

Treatment #3 – Hazard Signs and Public Information: Install hazard signs along FSR2400 and Mt Rose Trail area where high historic public recreation use has occurred in areas where high hazard exists. Estimate that 10 signs would be needed.

I. Monitoring Narrative:

Geotech/Slope Stability Assessment and Monitoring -Monitoring/assessment plan is to complete a stability and hazard assessment for the area and the road corridor. Rockfall and trees deposited onto the roadway will be monitored winter 2007 by measuring accumulation through the winter weather cycle with an observable reduction in rock and debris fall in the spring. The goal is to observe a decline to background or historic level of activity, remove debris and identified or remaining hazard trees, and re-open the road in the spring. The final conclusion and timing will be dependent on the results of our monitoring and assessment.

Implementation monitoring will be completed for all BAER treatments. Specifics of these activities will be outlined in the final BAER report. Cost estimates in Part VI for monitoring are preliminary. Implementation monitoring of other treatments will be done as treatments occur and the costs have been included as part of the treatment costs.

BAER Evaluation

BAER Survey Cost: The estimated cost of BAER Assessment and preparation of the Initial Burned Area Report is listed in Part VI of the 2500-8. Application of the proposed treatments will require the development of an Implementation Plan. More specific information related to proposed treatments is in the BAER Survey analysis file.

BAER Cultural Resource Survey: Field inspection for cultural resource sites have not yet been conducted. This assessment will occur winter 2007 prior to BAER treatments occurring.

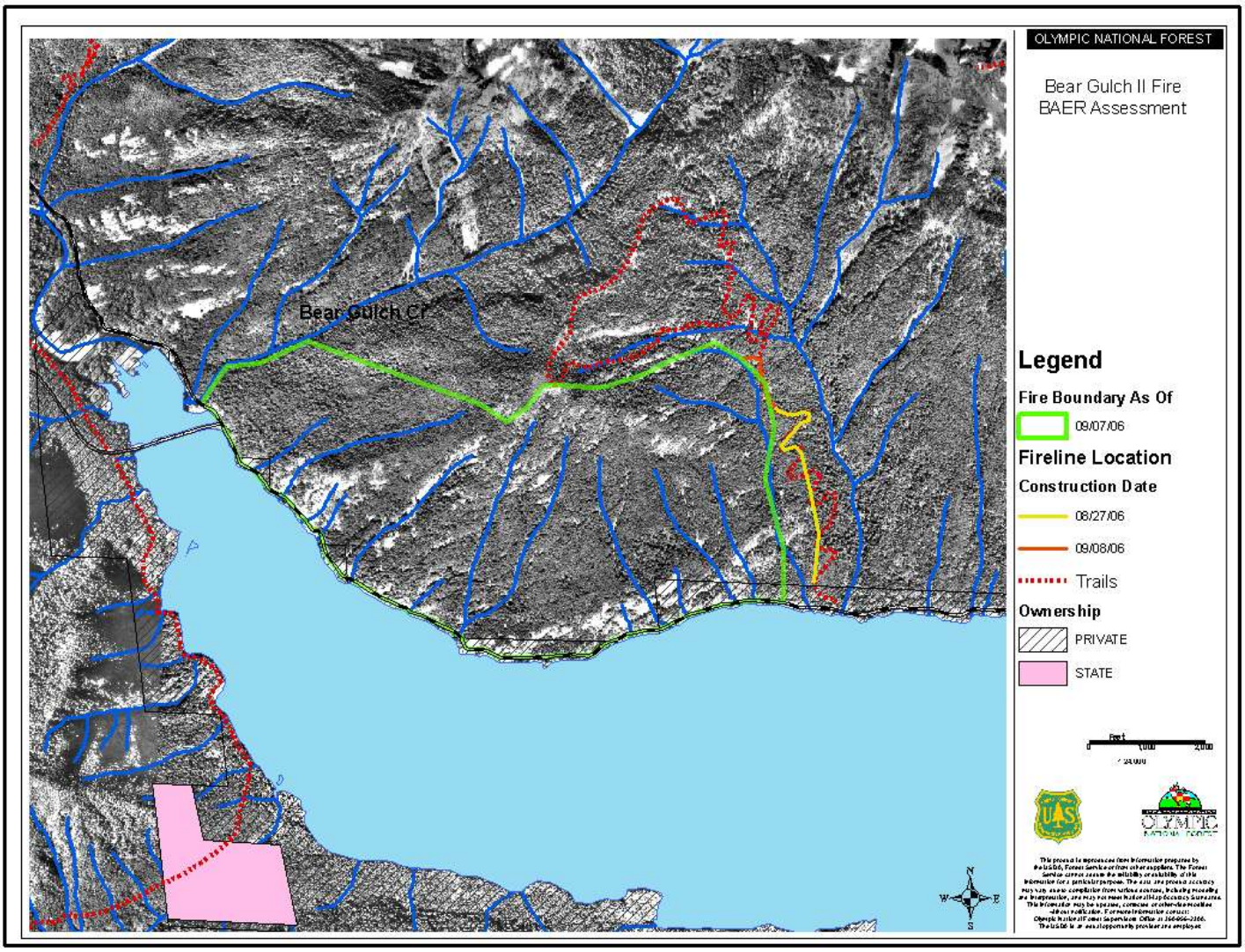
Part VI – Emergency Stabilization Treatments and Source of Funds **Bear Gulch II - Initial**

			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										
IWM of Invasive Plants	ac	700	10	$7,000	$0		$0		$0	$7,000
Monitoring of Invasive Plants	ac	90	20	$1,800	$0		$0		$0	$1,800
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$8,800	$0		$0		$0	$8,800
B. Channel Treatments										
none proposed				$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										
Road Clearing and Drainage	mi	920	2.5	$2,300	$0		$0		$0	$2,300
Trail Drainage, tread, Logout	mi	1000	1	$1,000	$0		$0		$0	$1,000
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$3,300	$0		$0		$0	$3,300
D. Protection/Safety										
Concrete Block Barrier	ea	150	915	$137,250	$0		$0		$0	$137,250
Hazard Tree Abatement	ea	18750	1	$18,750	$0		$0		$0	$18,750
Hazard Signs, Public Info	ea	300	10	$3,000	$0		$0		$0	$3,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$159,000	$0		$0		$0	$159,000
E. BAER Evaluation										
				---			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$0
F. Monitoring										
Getech Monitor, Report	mi	3472	2.5	$8,680	$0		$0		$0	$8,680
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$8,680	$0		$0		$0	$8,680
G. Totals				$179,780	$0		**$0**		**$0**	**$179,780**
Previously approved										
Total for this request				**$179,780**						

PART VII - APPROVALS

1. _____ _____
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date


OLYMPIC NATIONAL FOREST
Bear Gulch II Fire
BAER Assessment
Bear Gulch Cr
Legend
Fire Boundary As Of
09/07/06
Fireline Location
Construction Date
08/27/06
09/08/06
Trails
Ownership
PRIVATE
STATE