USDA-FOREST SERVICE FS-2500-8 (6/06)

Date of Report: 11/17/07

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: Ball Point Fire

B. Fire Number: OR-MHF-000055

C. State: Oregon

D. County: Wasco

E. Region: 6

F. Forest: Mt. Hood National Forest

G. District:

H. Fire Incident Job Code: P6DQB0

I. Date Fire Started: 7/12/2007

J. Date Fire Contained: 7/21/2007

K. Suppression Cost: $ 3,000,000

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 6.9
2. Fireline seeded (miles):
3. Other (identify):

M. Watershed Number: 1707030609 (Tygh Creek)

N. **Total Acres Burned**: 1238
NFS Acres(1238) Other Federal ( ) State ( ) Private ( )

O. **Vegetation Types**: The fire burned in a wide variety of vegetation types such as; open rocky meadows, ponderosa pine/oak with a grass-forb understory on south and west facing slopes; Douglas fir and grand fir ecotypes that include larch and western red cedar on the north facing slopes and riparian areas

P. **Dominant Soils**: The soils within the perimeter of the fire were derived from volcanic sources. Soils are shallow and rocky throughout the fire perimeter, with some small pockets of soil deposition on north facing slopes consisting of 15 to 20 inches of fine, nearly rock free soil material. Only 4 acres within the fire perimeter are mapped with a greater than moderate erosion hazard risk, with the majority in the moderate category. The erosion hazard rating for a particular soil type is based on bare soil. Therefore, where at least some groundcover is present or expected to be present before fall, the rating is lower than moderate in actuality. Several dry, craggy rock outcrops and dry meadows occur on the eastern half of the fire area. Slightly deeper soils and increased elevation and precipitation have resulted in a more forested landscape on the western half of the fire area. Slopes are very steep, ranging from 50 to 70% with numerous parallel zero and first order drainages occurring on very broken terrain in the Little Badger and Tygh Creek drainages

Q. **Geologic Types**: Within the area of the Ball Point Fire, the bedrock units are approximately horizontally layered volcanic deposits. The oldest and lowest lying unit is a partially welded ash flow tuff that underlies the area below approximately 2800' elevation in the Little Badger Creek Valley. The bedrock unit above that is Columbia River Basalt. The top of the basalt flows are near 3400' elevation. The higher slopes are underlain by light colored rhyodacite lava flows.

The contacts between the bedrock units often reflected by at a change in slope and can be wet zones or spring lines. The change in bedrock units can result in a change in the ground water regime and the contacts can be a source area for landslides.

A large ancient landslide deposit occurs near the west edge of the burned area, north of Little Badger Creek, in the SE ¼ of Section 15. The hillside here is less steep than the surrounding slopes and has diverted the creek to the south. This landslide is dormant and the fire will not reactivate it.

R. **Miles of Stream Channels by Order or Class**: intermittent streams: 2.4 miles
perennial streams: 0.9 miles

S. **Transportation System**

Trails: 3.0 miles Roads: 1.0 miles

PART III - WATERSHED CONDITION

A. **Burn Severity** (acres): 197 very low 652 (low) 359 (moderate) 68 (high)

Note: Burn severity is based on initial BARC info from RSAC (see attached map). Estimate of low and very low acres is high. BARC burn severity info will be adjusted based on additional field & aerial observations.

B. **Water-Repellent Soil** (acres): unknown

C. **Soil Erosion Hazard Rating** (acres):

69 (slight) 77 (slight-moderate) 1088 (moderate) 4 (moderate-severe)

D. **Erosion Potential**: 3.6 tons/acre (2.5 year event, WEPP model) 24.2 tons/acre (25 year event, WEPP model)

E. **Sediment Potential**: 1322 cubic yards/square mile (2.5 year event, WEPP model) 9357 cubic yards/square mile (25 year event, WEPP model)

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 7

B. Design Chance of Success, (percent): 70

C. Equivalent Design Recurrence Interval, (years): 25

D. Design Storm Duration, (hours): 24

E. Design Storm Magnitude, (inches): 4.5

F. Design Flow, (cubic feet / second/ square mile): 125

G. Estimated Reduction in Infiltration, (percent): 20

H. Adjusted Design Flow, (cfs per square mile): 160

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Watershed:

The Ball Point fire burned approximately 1,240 acres on the Barlow Ranger District, Mount Hood National Forest. Approximately 1195 acres of the fire are in the Badger Creek Wilderness, and 43 acres outside wilderness in the Little Badger Creek drainage. The fire burned 434 acres in the Tygh Creek watershed and 804 acres in the Little Badger Creek watershed.

Field investigations performed by soil and watershed specialists identified burn severity, soil types, slope morphology, and soil hydrophobicity (water repellency). Burn severity was further validated using remote sensing techniques (BARC). The pattern of the burn is a typical mosaic, with numerous patches of moderate severity too small to be mapped out individually. Areas of high severity are scattered throughout the fire, with no one area being particularly large, nor in landscape positions that would directly erode into the two primary creeks affected by the fire.

The Ball Point fire experienced (using the initial BARC classification) approximately 43 acres of high burn severity, 484 acres moderate burn severity, 281 acres low burn severity, and 430 acres of unburned or very low soil severity. Within the high and moderate severity areas soils exhibited a slight hydrophobicity, although it is difficult to determine if it is directly fire related or just the natural tendency of volcanic soils to exhibit repellency once totally dry. In either case, soils will be slightly repellent and susceptible to erosion during the first storms of the year

In conclusion, the following conditions lead us to believe only minor erosion and sediment movement is likely:

1. Only small pockets of potentially erosive soils in the fire area
2. Slight hydrophobicity present
3. Sufficient needlecast is likely to provide effective groundcover protection in moderate burn areas.
4. Although there areas of complete lack of groundcover protection in severely burned areas, they are small in size and scattered.

5. Areas of unburned and low severity are sufficient to 'buffer' creeks from any material mobilized from high and moderately burned areas.

Post-fire summer water temperatures in the streams draining the Ball Point fire area are expected to be minimally affected, because very little stream shading was lost in riparian areas as a direct result of the fire. A minimal amount of stream shade was lost as a result of felling hazards trees in riparian areas during the fire suppression effort.

Post-fire stream turbidity levels during precipitation events large events to generate runoff are expected to increase as a result of the loss of much of the duff/litter layer in much of the fire area. If a debris flow is initiated in an steep drainage inside a moderate or high burn severity area, instream turbidity levels would increase significantly, but gradually decrease as sediment is transported downstream or otherwise stabilized. In the absence of a debris flow, instream turbidity is expected to decrease following the first winter and as natural vegetative recovery occurs.

Winter peak streamflows are not expected to increase significantly in the Little Badger and Tygh Creek watersheds, since the percentage of the watershed burned was relatively small compared to the size of these watersheds. Only eight percent of the Tygh Creek watershed burned, and approximately 21 percent of the Little Badger Creek watershed burned. As a result, neither of the large pipe arch culverts on the 27 road (Tygh Creek Crossing) or 2710 road (Little Badger Creek crossing are believed to be at risk of failing due to increased peak flows or the additional flow bulking effect attributed to sediment and small woody material. The 27 road crossing on Tygh Creek, however, must be monitored closely for at least the first winter to identify any potential problems that may arise due to fire-related logs, etc. moving downstream. The Tygh Creek Creek pipe arch turns at a relatively sharp angle to the right mid-way through , which increases the risk of logs becoming wedged inside.

Geology:

The red colored channels on the attached map that lie within areas of moderate or high burn severity have potential for debris flow initiation. Channel segments that are inside a high or moderate burn severity area will have an elevated potential for debris flows above their natural or unburned potential. Debris flows may be initiated within a channel during a high runoff event, or may be initiated by a debris slide on a neighboring hillslope that reaches the channel and then transforms into a debris flow. Once initiated, the debris flows will continue down channel until they reach a deposition zone.

Large amounts of water are required to initiate debris flows. Given that this area is east of the Cascade Crest, it would take a sizeable storm event to trigger debris flows in the Ball Point area.

Map Legend:

Channel Color	Interpretation
Red	channels that are confined enough and steep enough to host a debris flow SCOUR ZONE
Blue	debris flow will continue through these channels with some scour and some deposition but no net change in channel sediment volume, no initiation of debris flows in this zone TRANSPORTATION ZONE
Green	channels that are too flat for a debris flow to continue DEPOSITION ZONE

Fisheries: There are **no** Federally listed as endangered or threatened fish species present in either Tygh or Little Badger Creeks, or in the Badger-Tygh 5th field watershed. There are Forest Service Region 6 sensitive interior redband trout present in streams reaches located in the burn area of both Tygh and Little Badger Creeks. The Ball Point fire will have some effects to the interior redband trout habitat with the potential increase of fine sediment to the stream channel, which can cause short term physiological stress to all life stages of redband trout located within and downstream of the burn area. There should be a short term increase of large woody debris to the stream channel from trees directly being killed from the fire or indirect mortality from the burn. The stream side vegetation which was burned in the fire should recover within the next 5-7 years therefore any increases to stream temperature should be short term. More effects to redband trout within the burn area are expected to come from fire suppression activities, than from the fire itself.

Trails: The effect of the fire has increased the risk to human life and has affected the trails due to the fire undermining the trail tread, increasing the number of dead trees, and increased the potential of run-off from the burned area.

The School Canyon trail runs along the north facing slope of Ball point where the burn was the most intense. It's a medium use horse and hiker trail which connects with the Little Badger trail, which is another popular trail that was affected by the fire. These system trails receive high visitor use during the wild flower season.

The wildfire-related damage to the above mention trails damage or at-risk portions of the trails has been reviewed on the ground. Approximately 4 miles of trail length inside the burn will need to be reconstructed to the minimum level necessary to protect human life and the existing investment in the trail and its functionality. The large numbers of medium diameter trees that line the trail have been killed by the fire and roots partially burned. As these trees blow over and the ground caves in near the stumps holes and burned roots, the trail will become even more unsafe for public horse and hiking use.

Roads: Fire-related hazard trees above Forest Road 27 that runs along the eastern boundary of the fire pose a risk to Forest Service employees and the public using this major paved forest road. The same section of Forest Road 27 is subject to additional runoff from the burned area. The flow capacity of road ditches needs to be improved, and culvert inlets need to be watched and woody debris removed, as needed, to handle the anticipated amount of fire-related runoff, sediment, and debris. Additional material from unstable cut slopes is expected move downslope into the road drainage ditch as a result of greater runoff/soil movement from the burned area above the road.

The inlet of large pipe arch on Forest Road 27 Tygh Creek may plug if sufficient fire-related and existing woody material is transported downstream during peak flow events this winter. Storms patrols during peak flow events are needed to detect potential problems and initiate appropriate response measures to protect the investment in the very large stream crossing and downstream fish habitat.

Invasive Plants:

Bulldozers and other equipment used to fight the fire may have brought in noxious weed seeds from many off-site locations. The burned area and newly constructed dozer and handlines may be invaded by invasive plants not currently growing in the vicinity of the Ball Point Fire, both within and outside the Badger Creek Wilderness.

The known noxious weed populations within the burned areas outside the Badger Creek Wilderness on the southern edge of this fire and along the 27 road system on the southeastern sections of the fire are Diffuse knapweed. These populations are currently being treated under the Barlow RD Noxious Weed Treatment Program. Specifically, the 27 road (Site #98), the 2710 road (Site #98), the 2711 road (Site # 112), the 2711-

011 & 2711-013 (Site #113) and the old North/South road, 2700-120 (Site #127) have all been treated prior to the start of this fire. All of these sites have been identified for future treatment under the 2007 Mt. Hood NF Noxious Weed FEIS.

The potential for new noxious weed invasions within the wilderness could happen as a result of the construction of fireline and the dispersion of noxious weed seed from humans (fire fighters), hikers, wildlife or air currents. Noxious weed surveys for this wilderness area are basically nonexistent, since most invasive plants require soil disturbance, and the only soil disturbance occurring within the wilderness is the maintenance of recreational hiking trails. At this time there are no known weed populations occurring along these trails.

Heritage Resources:

A constructed, but collapsed pedestrian bridge across Little Badger Creek appears to be at least 50 years old. Debris from past flooding has washed against the collapsed bridge; more debris could be expected to wash down this winter. Several fire-related hazards trees in the vicinity of the bridge pose a threat to this structure.

B. Emergency Treatment Objectives:

No land treatments, other than invasive plant surveys, in the burned portion of the wilderness are proposed since significant risk to wilderness resources or downstream life/property was not identified, per guidance for BAER in Wilderness (FSM 2523.03):

"Propose treatments in wilderness only if necessary to protect life or property (inside or outside wilderness) or resource values outside wilderness, or to prevent an unnatural loss of wilderness resources".

BAER treatment objectives are described below:

Roads: Minimize probable fire runoff-related damage to the 27 road and hazards to the public (below the burned area) and BAER implementation personnel by increasing the flow capacity of road drainage ditches, removing debris from culvert inlets during storms, hazard tree removal, and road storm patrols during peak flow events.

Trails: Minimize risk to public/horses and Forest Service employee (BAER implementation and others) safety by removing hazard trees along sections of the School Canyon and Little Badger Creek trails. Also reconstruct fire-damaged trail tread to the minimum standard to provide for safe use.

Invasive Plants: Provide for the early detection of invasive plants that may potentially invade the burned area from adjacent populations or various fire-fighting equipment and personnel (dozers, trucks, hand crews, etc).

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

Land N/A % Channel N/A % Roads 90 % Trails 90 % Protection/Safety 95 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land*	90 %	90 %	90 %
Channel	N/A	N/A	N/A
Roads/Trails	90%	90%	90%
Protection/Safety	95%	95%	95%

***note:** Land treatment is invasive plant surveys.

E. Cost of No-Action (Including Loss): $ 245,000

F. Cost of Selected Alternative (Including Loss): $ 76,000

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Ivars Steinblums

Email: isteinblums@fs.fed.us Phone: 503-668-1780 FAX: 503-668-1423

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:

Treatment # L1, Invasive plant Surveys.

Purpose: First year monitoring will ensure early detection and identify subsequent treatment if necessary to prevent the spread of noxious weeds into the burned areas and into the Badger Creek Wilderness where they would be difficult and costly to control. Detection surveys are intended to reduce the post-fire potential for significant increase in noxious weed populations that could spread into the burned area and quickly out-compete native vegetation which could cause erosion problems in the future. In order for native vegetation to establish successfully, new populations of noxious weeds need to be located after the burn and prevented from spreading.

Conduct Invasive Species (i.e, noxious weeds) detection surveys (monitoring) along 7.18 miles of dozer line, widened road with a dozer and the old north/south road that will be rehabiltated and re-decomissioned. Detection surveys would be conducted to determine if treatment of noxious weeds is

warranted. If noxious weeds are detected in the first year, an invasive species emergency stabilization treatment and monitoring plan would be submitted to request funding for treatment and effectiveness monitoring the second year, and third year if necessary.

The 7.18 miles of dozer line/roads would equate to 85.62 acres identified for detection surveys/monitoring. An assumption has been made that these areas within and in close proximity to the Ball Point Fire are at greatest risk for spread of noxious weeds due to the proximity of known sites to seed dispersal corridors along roads that connect to the fire line, dozer lines and the road identified for rehabilitation (old north/south).

Personnel costs are calculated based on a low to moderate intensity survey method. The method described would be ocular observations within these identified areas. The method would involve driving where possible (low intensity) and foot travel (moderate intensity) where driving is not possible. The daily cost would be salary, and vehicle (FOR) which would equate to $1,900.00 for 5 days of survey work, by a qualified Forest Service Weed Coordinator.

Roads and Trail Treatments:

Treatment # R1, Forest Road 27, Heavy Maintenance.

Purpose: Ready the Tygh Creek south grade for greater than normal post-fire surface runoff, sediment, and debris from the burned area onto unstable cut slopes, by increasing capacity of road drainage ditches, and removing woody debris from culvert inlets during/following storm events, to handle greater than normal runoff, sediment, and woody debris from the burned area.

Treatment # R2, Forest Road 27, Storm Patrol

Purpose: Prevent blockage and failure of the large pipe arch crossing on Tygh Creek at Forest Road 27 by conducting storm patrols several times during winter peak flow events.

Protection/Safety Treatments:

Treatment # S1, Forest Road 27, Hazard Tree Removal

Purpose: Reduce risk to Forest Service employees and public using Forest Road 27 below the burned area by felling hazard/danger trees along approximately 1 mile of the road.

Treatments # S2 and S3, School Canyon and Little Badger Creek Trail Safety Work

Purpose: Reduce risk to Forest Service employees and public/horses by felling hazard trees and minimal trail tread repairs on various fire damaged portions of approximately 4 miles of the School Canyon and Little Badger Creek trails. The planned work (minimal trail tread repair and drainage) is the minimum amount needed to alleviate potential safety issues and to minimize further damage to the trail from additional runoff from the burned area.

Treatment # S4, Temporary Trail Closure Warning Signs

Purpose: Both the School Canyon and Little Badger Creeks trails are unsafe to use as a result of significant risk from hazard trees and damaged trail tread. The trail heads need signs to notify the public of the trails are temporarily closed due to the hazardous conditions.

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.)

No monitoring funds are being requested at this time.

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										
				$0	$0		$0		$0	$0
L1, Invasive species surveys	ea	1900	1	$1,900	$0		$0		$0	$1,900
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$1,900	$0		$0		$0	$1,900
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										
R1, 27 rd. drainage/culvert work	miles	11000	0.5	$5,500	$0		$0		$0	$5,500
R2, 27 rd. storm patrol	each	1050	1	$1,050	$0		$0		$0	$1,050
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$6,550	$0		$0		$0	$6,550
D. Protection/Safety										
S1,27 rd. hazard tree removal	miles	575	1	$575	$0		$0		$0	$575
S2, trail hazard tree removal	miles	1200	4	$4,800	$0		$0		$0	$4,800
S3, trail tread reconstruction	miles	15000	2	$30,000	$0		$0		$0	$30,000
S4,trail head warning signs	each	2000	1	$2,000						$2,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$37,375	$0		$0		$0	$37,375
E. BAER Evaluation				$8,500						$8,500
				---			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$0
F. Monitoring										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$45,825	$0		**$0**		**$0**	**$45,825**

PART VII - APPROVALS

1. /s/ Gary L. Larsen _____ 10/11/07
   Forest Supervisor (signature) Date

2. /s/ Calvin N. Joyner (for): 12/21/07
   Regional Forester (signature) Date