Date of Report: August 12, 2014

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: Ochoco Complex (Fox Fire)

B. Fire Number: OR-OCF-000390

C. State: Oregon

D. County: Crook

E. Region: Pacific Northwest (6)

F. Forest: Ochoco / Prinville BLM

G. District: Paulina

H. Fire Incident Job Code: P6H8R8 (0607)

I. Date Fire Started: 7/13/2014

J. Date Fire Contained: 8/8/2014

K. Suppression Cost: $6,210,000 as of 8/7/2014

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): 12 miles mostly dozer line, and to a much lesser extent handline
2. Fireline seeded (miles): 12, not all fireline is currently seeded but it is expected to be.
3. Other (identify): Safety zones, staging areas and drop points are in the process of being rehabilitated. Road drainage installed where suppression activities warranted so.

M. Watersheds:

Fox Canyon-North Fork Crooked River (170703040501)
Headwaters North Fork Crooked River (170703040304)
Rough Canyon Creek-North Fork Crooked River (170703040502)

HUC 6 subwatersheds affected by the Fox Fire. Percent of watersheds burned are reported in parentheses.

Subwatersheds	Total Acres	Unburned Acres	Burn Severity		
			Low Acres	Moderate Acres	High Acres
Fox Canyon-North Fork Crooked River	19,656	18,976 (97%)	489 (2%)	175 (1%)	16 (0.1%)
Headwaters North Fork Crooked River	15,583	15,569 (100%)	11 (0.1%)	3 (0%)	0 (0%)
Rough Canyon Creek-North Fork Crooked River	25,271	22,017 (87%)	2,498 (10%)	717 (3%)	39 (0.2%)

N. Total Acres Burned: 9,960 total acres
NFS Acres(2,766) BLM (5910) State of Oregon (287) Private (997)

O. VegetationTypes: Plant communities affected by wildfire and suppression activities on the Ochoco National Forest include plant association groups dominated by Douglas fir (Psuedotsuga mensiesii) (505 acres), ponderosa pine (Pinus ponderosa) communities (639 acres), Juniper steppe (Juniperus occidentalis) communities occupied 9.5 acres, and scabland shrub communities (1,577 acres). There are also seeps, springs and other groundwater dependent ecosystems scattered across the fire area that have unique plant communities including aspen, sedges, rushes and mosses. The plant association groups form mixed conifer stringers along drainages which intersect vast scabland habitats across most of the fire area on Forest Service lands.

P. Dominant Soils: Soils within the Fox Fire area on the Paulina District of the Ochoco National Forest can be differentiated in general terms by the presence or absence of Mount Mazama-origin volcanic ash capping, which varies based largely on aspect. Lithic soils occur on the rocky scablands with very little ash. The northern (NW, N and NE) aspects and eastern aspects (E) are largely Alfic Humic Vitrixerands which are ash-capped soils with 14 inches or greater of ash, a dark organic-rich surface (mollic epipedon), and a clayey subsoil (argillic horizon). Representative soils series are the Combsflat, Valpey, Pilotbutte, Fortcreek, Norlo, Normauk and Scarpal series. Ash-capped soils which have less than 14 inches of ash are classified as Vitrandic Argixerolls and occur on ridge shoulder positions, upper slopes and on more westerly and southerly (W, SW, S and SE) aspects with largely clayey subsoils also. Representative soil series are the Larabee, Klicker, Maule, Larabee and Shotsprings series. Soils with less than 7 inches of surface ash (Ultic Argixerolls) also occur throughout the area. Representative series are the Hafmau and Maucav series. The scabland soils are characterized by the Canest and Tweener series.

Q. Geologic Types: The Fox Fire is underlain 100% by Tertiary (16 Million year old) Picture Gorge Basalt (Tcp). Locally, the Picture Gorge Basalt has been faulted, with stringers of timber scribing the fault lines. The baked soil horizons between the basalt flows offer zones of permeability for groundwater movement. Groundwater also moves vertically through the fault planes. The ground water expresses as seeps and springs on the surface. The fire area is fully within Level 4 Eco-region - Scab Stringer.

R. Miles of Stream Channels by Order or Class: See Table Below

	Length (Miles)	
Stream Order	Entire Fire	USFS
1	0.35	0.19
2	14.4	1.9
3	1.9	1.9
4	7.7	4.1
5	0.5	0.2
Total	24.85	8.29

S. Transportation System

Trails: 0 miles

Roads: See Table Below

Maintance Level	Miles
1-Basic Custodial Care (closed)	12.74
2-High Clearance Vehicles	1.1

PART III - WATERSHED CONDITION

A. Burn Severity (acres): Total: 6012 (unburned); 2998 (low); 894 (moderate); 56 (high)
NFS Land: 1465 (unburned); 975 (low); 300 (moderate); 26 (high)

B. Water-Repellent Soil (acres): 190 total, 65 on NFS lands

C. Soil Erosion Hazard Rating with NFS Land (acres):

0 **(low)** 536 **(moderate)** 2212 **(high)**

Almost all of this area comes out high and moderate because of the huge percentage of shallow rocky soils and high runoff peaks which is typical of scab/stringer terrain.

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period	5 years
B. Design Chance of Success	80%
C. Equivalent Design Recurrence Interval	5 years
D. Design Storm Duration	0.5
E. Design Storm Magnitude	0.66 inches
F. Design Flow	29 cfs/ mi^2
G. Estimated Reduction in Infiltration	12%
H. Adjusted Design Flow	31 cfs cfs/ mi^2

Summary of Watershed Response

Hydrologic Response: Initial erosion of ash and surface soil during the first storm events will reduce slope roughness by filling depressions above rocks, logs, and remaining vegetation. The ability of the burned slopes to detain water and sediment will be reduced accordingly. This will aid in the potential for flashy floods and will increase the distance that eroded materials are transported. However, several factors favor a quick recovery in terms of normal hydrologic response of some hillslopes. The existence of fine roots in the low and moderate severity burn areas just below the surface will likely aid plant recovery, and suggests there still might be a seed source for natural vegetation recovery. The major concern for vegetative recovery and in turn hydrologic recovery is in the high severity burn areas.

Five-year design stormflows were estimated using the Oregon Water Resources Department peak discharge tool (OWRD, 2014). Pre-fire streamflows were estimated at 55 cfs and 128 cfs for the Fox Canyon and the

Rough Canyon analysis watersheds, respectively. The percentage of infiltration reduction was estimated to be approximately 3% for the Fox Canyon analysis watershed and 11% for the Rough Canyon analysis watershed based on the percentage of the area with moderate and high burn severities. This reduction in infiltration produces post-fire streamflows estimated at approximately 57 cfs and 142 cfs for the Fox Canyon and Rough Canyon analysis watersheds, respectively.

Erosion Response: The erosion response is predicted to be low to moderate depending on the individual slope and section of stream affected. The fire effects are predicted to be discontinuous along the major drainways such as Fox Canyon, Hail Canyon and Rough Canyon. Naturally these are flashy systems so the effects of the fire are expected to be localized.

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Values at Risk:

The table below is Exhibit 02 from FSM 2523.1. This matrix was used to evaluate the risk level for each value identified during this BAER assessment. See FSM 2523.1 for additional information.

Probability of Damage or Loss	**Magnitude of Consequences**		
	Major	Moderate	Minor
	RISK		
Very Likely	**Very High**	**Very High**	**Low**
Likely	**Very High**	**High**	**Low**
Possible	**High**	**Intermediate**	**Low**
Unlikely	**Intermediate**	**Low**	**Very Low**

The table below is a summary of the values (some of which were not identified as 'critical' per Exhibit 01 from FSM 2523.1) within and along the Fox fire area, as well as, the threats to those values, the probability of damage or loss, magnitude of consequences and the resulting level of risk. Red shaded cells are those values that rated out as "very high" or "high" risk. Yellow shaded cells rated out "intermediate" risk and white cells rated out "low" or "very low".

Value (Life/ Property/ Resources)	Value At Risk	Threat to Value At Risk	Probability of Damage or Loss	Magnitude of Consequences	Risk	Treatment	Notes
Resources	Native and naturalized communities	Invasion of native habitat from noxious weed spread from post fire-conditions	Very Likely	Moderate	Very High	Detection and treatment of new weed infestations and subsequent seeding of 20 acres. ***Treatment L1***	Mapped weed populations (primarily Medusa Head and Ventenata) are a threat to naturalized communities. These communities include sensitive plant species such as Henderson's Needle Grass and Pecks Mariposa Lily. Dozer/hand lines and reopened roads are a concern as well. Cattle will continue to be a spread vector from burned up fences and gates.
Resources	Native or naturalized communities within Designated Travel Management Area	Invasion of native habitat from noxious weed spread due to roads opened by the fire (not by suppression).	Likely	Moderate	High	Minimum treatment identified as road closure signs. ***Treatment L2***	Gates considered but deemed not effective due to relatively flat, open country.
Resources	Native plant communities associated with special habitats	Invasion by noxious weeds	Possible	Minor	Low	No Treatment	Pertaining to springs and associated aspen. Potential for Long Term rehab.
Resources	Aquatic Species and Habitat	Degradation to aquatic habitat from post-fire watershed response.	Possible	Minor	Low	No Treatment	No T&E species or 303(d) listed streams.
Resources	Soil Productivity on side-slopes	Loss of soil due to erosion from loss of duff and downed wood.	Likely	Minor	Low	No Treatment	Steeper slopes vulnerable however they are generally rocky and isolated. Wood recruitment anticipated.
Resources	Soil Productivity and Hydrologic Function in channel and on floodplain	Loss of soil from loss of veg and downed wood along/in channel	Likely	Minor	Low	In-channel tree felling considered, but dropped.	Some trees anticipated to fall into stream channels. Effects are expected to be localized.
Resources	Hydrologic Function	Post-fire increase in peak flows	Possible	Minor	Low	No Treatment	No treatment based on small percentage of subwatersheds

							burned with high to moderate severity.
Property	Forest Service Roads	Loss of roads due to post-fire watershed response (i.e. flooding)	Possible	Minor	Low	No Treatment	Burn severity is mainly low and unburned and very few culvert crossings within the fire area.
Life/ Property/ Resources	Roads and associated traffic	Increased landslide potential from post-fire conditions	Unlikely	Moderate	Low	No Treatment	Low risk potential due to mainly low and unburned severity as well as low traveled roads.
Resources	Cultural resources including 6 lithic scatters	Loss or exposure of cultural and heritage resources from the fire.	Unlikely	Minor	Very Low	No Treatment	Cultural resources are considered a loss from the fire with no treatment needed for further protection.
Resources	Potential Sage Grouse Habitat	Weed displacement of habitat due to post fire conditions	Likely	Moderate	High	No Treatment	Not currently covered under BAER as Sage Grouse is not T&E species.
Life/ Property	Loss of life or damage to property	Hazards that exist from post fire conditions (mostly hazard trees)	Possible	Major	High	3 Hazard Signs ***Treatment P1***	Suppression team has mitigated some hazard trees, but anticipation of more hazard trees within year one post-fire.
Resources	Forest Service Lands	Without NFS boundary signs designated management areas may be compromised	Possible	Minor	Low	No treatment justified	Not justified as BAER emergency.

B. Emergency Treatment Objectives:

The primary objective of this Burned Area Emergency Response Report is to recommend prompt actions deemed reasonable and necessary to effectively protect, reduce or minimize significant threats to human life and property and prevent unacceptable degradation of natural and cultural resources. The application of these BAER treatments would minimize on-site and downstream damages to the identified values at risk previously mentioned. The emergency treatments being recommended by the Fox Fire BAER Team are specifically designed to achieve the following results.

Proposed Land and ProtectiveTreatments

The objectives of the land and protective treatments are to:

1. Protect human life and safety by assessing for, and removing hazards, limiting access into unsafe areas and posting hazard awareness signs (P1).
2. Minimize the increased potential for the spread of invasive and noxious weeds (L1, L2).

Proposed Road and Trail Treatments

There are no proposed road and trail treatments.

Proposed Channel Treatments

There are no proposed channel treatments.

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

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

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	70	80	90
Channel	NA	NA	NA
Roads/Trails	NA	NA	NA
Protection/Safety	85	90	95

E. Cost of No-Action (Including Loss): Critical values identified in Section A would be damaged or lost. Cost of the no action is estimated to be $300,000.

F. Cost of Selected Alternative (Including Loss): There remains an approximate 20% chance that the proposed treatments for this initial work may not be fully successful. Total cost of the action alternative plus this 20% chance of failure is $21,070.

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Rob Tanner – Asst. Forest Hydrologist/BAER Coordinator, Deschutes and Ochoco NF

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Team Members:

Kyle Wright- Hydrologist/Team Leader
Trainee
Diane Hopster- Hydrologist
Jim David- Soil Scientist
Krista Farris- Botany
Carrie Gordon- Geology
Dede Steele- Wildlife
Ramon Alonso- Engineering
Dan Rife- Fisheries
Kent Koeller- Recreation
Dino Borghi- GIS
Terry Holtzapple- Archaeology
Steve Gibson- Range

H. Treatment Narrative:

Land Treatments:

L1 - Invasive Weed Detection and Treatment: Invasive plant surveys and treatment along the Forest Service South Boundary Travel Management Area will be necessary to prevent dispersal of non-native invasive plants coming onto Forest Service portion of the Fox fire from BLM and private lands.

Treatment	Units	Unit Cost	# of Units	Total Cost
L1 Weed Surveys/ Treatment	Acres	$135.36	100	$13,536

L2 - Roads Closed Signs: Fire exposed previously vegetated roads that are now driveable. Signs would let motorist know that roads are closed, thus preventing an addational vector of invasive weeds.

Treatment	Units	Unit Cost	# of Units	Total Cost
L2 Road Closed Signs	Signs	$112	6	$672

Protection/Safety Treatments:

P1 - Hazard Signs: Install Hazard Warning signs on FS 500 road as it enters into the burn and on road 4230 from the north and south.

Treatment	Units	Unit Cost	# of Units	Total Cost
P1 Hazard Signs	Signs	$300	3	$900

Channel Treatments/ Road and Trail Treatments:
No treatments Proposed

I. Monitoring Narrative:

M1 - Effectiveness monitoring includes the following components:
1). How effective was the prescribed treatment in reducing infestations?
2). Were all Project Design Features effectively implemented? If not why?
3). Treatment recommendations for follow up treatment.

Treatment	Units	Unit Cost	# of Units	Total Cost
Monitoring of Treatment L1/ L2	Days	$350	4	$1,400

Part VI – Emergency Stabilization Treatments and Source of Funds

			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(L)										
L1-Weed Surveys/ Treat	Acres	$135.36	100	$13,536	$0		$0		$0	$13,536
L2- Road Closed Signs	Signs	$112	6	$672	$0		$0		$0	$672
				$0	$0		$0		$0	
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$14,208	$0		$0		$0	$14,208
B. Channel Treatments										
				$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 (R-T)										
				$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 Road & Trails				$0	$0		$0		$0	$0
D. Protection/Safety (P)										
P1- Hazard Signs	Signs	$300	3	$900	$0		$0		$0	$900
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$900	$0		$0		$0	$900
E. BAER Evaluation										
Fox Fire Evaluation				$22,963			$0		$0	$0
Insert new items above this line!					$0		$0		$0	$0
Subtotal Evaluation					$0		$0		$0	$0
F. Monitoring (M)										
M1-Monitor L1	days	350	4	$1,400	$0		$0		$0	$1,400
Implementation Leader	days	350	3	$1,050	$0		$0		$0	$1,050
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$2,450	$0		$0		$0	$2,450
G. Totals				$17,558	$0		**$0**		**$0**	**$17,558**
Previously approved										
Total for this request				**$17,558**						

PART VII - APPROVALS

1. Kate Klein — August 12, 2014
   Forest Supervisor (signature) — Date

2. _____ — _____
   Regional Forester (signature) — Date