

(Reference FSH 2509.13)

1

M. Watersheds:

HUC 6 subwatersheds affected by the Whitewater, Little Devil and Scorpion Fires. Percent of watersheds burned are reported in parentheses. The data has been presented in two formats for ease.

Cumulative Watershed Soil Burn Severity					
Fire by Subwatershed	Total Subwatershed Acres (Percent Burned)	Soil Burn Severity Acres (Percent Burned)			
		High	Moderate	Low	Unburned or Very Low
Pamelia Creek Total	15,475 (18%)	9 (0%)	345 (2%)	403 (3%)	2,021 (13%)
Whitewater	2,778	9	345	403	2,021
South Fork Breitenbush River Total	13,082 (21%)	0 (0%)	541 (4%)	1,316 (10%)	925 (7%)
Little Devil	1,073	0	0	761	312
Whitewater	1,709	0	541	556	613
Upper Breitenbush River Total	20,395 (9%)	0 (0%)	30 (0%)	906 (4%)	915 (4%)
Little Devil	1,067	0	12	706	350
Scorpion	692	0	10	173	508
Whitewater	92	0	8	27	56
Whitewater Creek Total	11,619 (60%)	308 (3%)	2,784 (24%)	1,641 (14%)	2,289 (20%)
Little Devil	21	0	0	7	14
Whitewater	7,002	308	2,784	1,634	2,275
Grand Total	60,571 (24%)	317 (1%)	3,700 (6%)	4,266 (7%)	6,150 (10%)

Fire Soil Burn Severity					
Subwatershed By Fire	Total Subwatershed Acres	Soil Burn Severity Acres (Percent Burned)			
		High	Moderate	Low	Unburned or Very Low
Little Devil Total	2,161	0 (0%)	12 (1%)	1,473 (68%)	676 (31%)
South Fork Breitenbush River	1,073	0	0	761	312
Upper Breitenbush River	1,067	0	12	706	350
Whitewater Creek	21	0	0	7	14
Scorpion Total	692	0 (0%)	10 (2%)	173 (25%)	508 (73%)
Upper Breitenbush River	692	0	10	173	508
Whitewater Total	11,580	317 (3%)	3,678 (32%)	2,619 (23%)	4,966 (43%)
Pamelia Creek	2,778	9	345	403	2,021
South Fork Breitenbush River	1,709	0	541	556	613
Upper Breitenbush River	92	0	8	27	56
Whitewater Creek	7,002	308	2,784	1,634	2,275
Grand Total	14,434	317 (2%)	3,700 (26%)	4,266 (30%)	6,150 (43%)

N. Total Acres Burned:

Ownership Acres By Fire			
Fire	Forest Service	Private	Grand Total
Little Devil	2,161		2,161
Scorpion	692		692
Whitewater	11,570	10	11,580
Grand Total	14,424	10	14,434

Fire	Outside Wilderness	Mount Jefferson Wilderness	Grand Total
Little Devil	2,061	100	2,161
Scorpion	692		692
Whitewater	5,055	6,525	11,580
Grand Total	7,808 (54%)	6,626 (46%)	14,434

O. Vegetation Types: The higher elevation forests in the Wilderness include mountain hemlock, subalpine fir, and whitebark pine. Mid-elevation forest vegetation includes pacific silver fir, Douglas-fir, western red cedar, and Alaska yellow cedar. Lower elevation forest vegetation includes wet mixed conifer composed of Douglas-fir, western red cedar, and western hemlock.

P. Dominant Soils: The dominant soils within all the fire perimeters (Whitewater, Little Devil, and Scorpion) are inceptisols. The inceptisols soils in the fire perimeters have a dominantly loam texture. Soils within the burned areas generally contained high rock content (surface fragments) ranging from 21 to 80%. Shallow soils developed from lava flows and unconsolidated materials make up all fire perimeters. The dominant hydrologic soil group was C – this means that the soils within all the fire perimeters have moderately high runoff potential when thoroughly wet based on measured rainfall, runoff and infiltration data.

Q. Geologic Types: The Whitewater, Little Devil, and Scorpion Fires are all located within Western Cascades geologic province. The province is characterized as an older, deeply eroded volcanic range lying west of the more volcanically recent snow-covered High Cascade Range. The area of the three fires is composed of almost entirely of slightly deformed and partly altered volcanic flows and pyroclastic rocks from late Eocene to late Miocene (35 to 9 million years ago). Faulting and uplift began through region from late Miocene to Pliocene (4 to 9 million years ago). These rocks have been heavily dissected by erosion and the only evidence remaining of the many volcanoes from which they were erupted are occasional remnants of volcanic necks or plugs which mark former vents. The eastern portion of the Whitewater Fire extends into the High Cascades and the western flanks of Mount Jefferson. The High Cascades is dominated by Pliocene to recent (0 to 4 million years ago) intracanyon basalt and basaltic andesite flows and heavily glaciated mountain landforms from steep moraines to gentle relief braided outwash plains.

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

Streams by Fire	
Fire / Flow Regime	Miles
Little Devil	23
Intermittent	20
Perennial	3
Scorpion	6
Intermittent	4
Perennial	2
Whitewater	125
Intermittent	97
Perennial	28
Grand Total	154

S. Transportation System: 6,626 acres (46%) of the fire was in the Mt. Jefferson Wilderness

Trails:

Trails by Fire	
Fire Name	Miles
Little Devil	0.5
Whitewater	14.1
Grand Total	14.6

Roads:

Road Miles by Fire	
Fire & Operational Maintenance Level	Miles
Little Devil	5
1 - BASIC CUSTODIAL CARE (CLOSED)	2
2 - HIGH CLEARANCE VEHICLES	3
Scorpion	1
2 - HIGH CLEARANCE VEHICLES	1
5 - HIGH DEGREE OF USER COMFORT	0
Whitewater	31
1 - BASIC CUSTODIAL CARE (CLOSED)	9
2 - HIGH CLEARANCE VEHICLES	23
Grand Total	37

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Soil Burn Severity Acres By Fire					
Fire	High	Moderate	Low	Unburned	Grand Total
Little Devil		12	1,473	676	2,161
Scorpion		10	173	508	692
Whitewater	317	3,678	2,619	4,966	11,580
Grand Total	317	3,700	4,266	6,150	14,434

B. Water-Repellent Soil (acres):

Little Devil Fire: Hydrophobic soil conditions are estimated to occur to varying degrees on approximately 9% (201 acres) of the burned area, within the moderate to low burn severity depth and should be variable to a surface depth of not more than 1 inch due to the shallow soils tendency. Hydrophobicity values were not tested.

Scorpion Fire: Hydrophobic soil conditions are estimated to occur to varying degrees on approximately 25% (176 acres) of the burned area, within the moderate to low burn severity depth and should be

variable to a surface depth of not more than 1 inch due to the high fragmental, porosity soil properties. Water repellency values tested shows a poor (none) tendency.

Whitewater Fire: Hydrophobic soil conditions are estimated to occur to varying degrees on approximately 30% (3,500 acres) of the burned area, within the moderate to high burn severity mostly above 1 inch and not deeper than 3 inches. The average water repellency conditions tested in the field fall under weak (moderate) repellency conditions with some sites with strong tendencies. A level of natural hydrophobicity is present within the high steep areas due to thin sandy loam surface horizons. This natural hydrophobicity could be represented in the unburned/very low and low soil burn severity areas for a potential percentage of 5-10% of the area.

c. Soil Erosion Hazard Rating (acres):

Little Devil Fire		
Erosion Hazard Rating	Acres	Percent
Slight to Moderate	3	<1
Moderate	379	18
Moderate - Severe	1,287	60
Severe	492	23

Erosion Hazards within the Little Devil fire are low for approximately 0.15% of the area, moderate for approximately 78% of the area and severe for approximately 23% of the area.

Scorpion Fire		
Erosion Hazard Rating	Acres	Percent
Slight	99	14
Moderate	160	23
Moderate - Severe	115	17
Severe	318	46

Erosion Hazards within the Scorpion fire are low for approximately 14% of the area, moderate for approximately 40% of the area and severe for approximately 46% of the area.

Whitewater Fire		
Erosion Hazard Rating	Acres	Percent
Slight	60	1
Slight-Moderate	789	7
Moderate	5,693	49
Moderate - Severe	2,954	2
Severe	1,541	13
No Data	543	5

Erosion Hazards within the Whitewater fire are low for approximately 8% of the area, moderate for approximately 52% of the area and severe for approximately 13% of the area.

D. Erosion Potential:**Post-fire Average Erosion Rates (estimated)**

Fire name	Tons/ac
Little Devil	2-8
Scorpion	12-18
Whitewater	2-35

E. Sediment Potential:**Pre-fire Average Sediment Production rates (estimated) for a 2 and 5 year storm runoff event**

	2-year event	5-year event
Fire name	Tons/ac	Tons/ac
Little Devil	0.31	2
Scorpion	3	6
Whitewater	1.2	9

Post-fire Average Sediment Production rates (estimated) for a 2 and 5 year storm runoff event

	2-year event	5-year event
Fire name	Tons/ac	Tons/ac
Little Devil	1.5	5
Scorpion	8	12
Whitewater	10	22

Total Sediment rates (cubic yard/square mile):

	2-year event	5-year event	
Fire name	Cubic yard /square mile	Cubic yard /square mile	Percent of fire representation
Little Devil	1,948	7,213	50
Scorpion	7,962	12,293	50
Whitewater	19,883	41,962	13

- F. Debris Flow Potential:** The USGS Post-Fire Debris Flow Hazard Model is used to assess the Combined Hazard of each drainage in the burned area. The Combined Hazard Rating takes into consideration both the likelihood of occurrence and volume of available sediment. The Scorpion and Little Devil Fires are estimated to have very low to low level of debris-flow hazard. The debris flow likelihood Whitewater Fire shows higher potential due to higher burn severities and steep slopes. The areas with high to very high (60-100%) potential are the slopes on the south slopes of Whitewater

Creek. The lower portion of the drainage has a moderate potential combined hazard with estimated debris flows from less than 1,000 to 10,000 cubic meters (~ <1,300 to 13,000 cubic yards). Note that this area also **does not** contain any open roads, recreation trails or sites. All roads in this area are closed and the trails are located above the area at risk. (see map in Geology Special report for more detail)

PART IV - HYDROLOGIC DESIGN FACTORS

Hydrologic Design Variables	
A. Estimated Vegetative Recovery Period	2-10* years
B. Design Chance of Success	80 %
C. Equivalent Design Recurrence Interval	2 year
D. Design Storm Duration	24 hour
E. Design Storm Magnitude	2.77-3.68
F. Design Flow	48 cfs/mi ²

*The majority of the burned area will recover in 2 years, but the high soil burn severity areas combined with the high elevation Wilderness areas with short growing periods and shallow rocky soils will experience a slower vegetative recovery period.

Summary of Watershed Response

Hydrologic Response:

Due to the steepness of these drainages and the amount of high and moderate burn severity (particularly in the headwaters of the Whitewater and South Fork Breitenbush subwatershed), the large areas now devoid of vegetation after the fire, the first large runoff producing storms will likely create increased surface flow. This scenario coupled with existing wet antecedent soil conditions from previous storms could trigger a potential flood event with high sediment volumes. The highest amounts of sediment yields from the burned watersheds are expected during the first year after the fire.

Post-fire watershed response for the Whitewater Fires was evaluated in several different areas: at the 6th field scale for the Whitewater Creek, Pamela Creek, and South Fork Breitenbush sub-watersheds and the site of a future hydropower intake on Russel Creek. In order to calculate the pre and post fire discharge a gage analysis was used; Appendix A describes the calculation process. Whitewater Creek was the largest subwatershed completely burned within the burn perimeter. Increased 2-year peak flows as a result of the fire in Whitewater Creek increased from 868 cfs (cubic feet per second) to 1450 cfs, a 1.7 times increase. Russel Creek, a drainage at the headwaters to Whitewater Creek also experienced increased flows from 198 cfs to 348 cfs, a 1.8 times increase. Two other watersheds were considered at the 6th field level, Pamela Creek and South Fork Breitenbush, which saw 1.1 and 1.2 times increase respectively.

The Little Devil and Scorpion Fires are expected to have a more moderated effect on discharge post-fire, due to the smaller acreage of burned areas and lower burn severities in the Devil Creek and Scorpion drainages. Estimated increases in post-fire peak discharge were 1.2 times increase in Devils Creek and 1.1 times increase in Scorpion Creek near its confluence with the Breitenbush River under Forest Service Road 46.

Pre/ Post Fire Discharge and Percent Increase in Volume

Watershed	Pre-fire cfs	Post-fire cfs	Times Increase
Pamelia Creek *			
6 th Field	1120	1199	1.1x
Whitewater Creek *			
6 th Field	868	1450	1.7x
Russel Creek @ future hydropower intake	198	348	1.8x
South Fork Breitenbush River *			
6 th Field	963	1169	1.2x
Upper Breitenbush River *			
Scorpion Creek @ Hwy 46	137	156	1.1x
Devils Creek above Mill Creek confluence	546	658	1.2x
Devils Creek @ Rd 870	281	371	1.3x

*HUC (Hydrologic Unit Code) 12

Erosion Response:

Little Devil: Soil Burn Severity within the Little Devil Fire is dominantly low burn severity (68%). These areas are representative of steep mountain slopes and ridge outcrop landforms. Moderate soil burn conditions were minimal and in the ridges of the Mountain slopes. These soils are classified as moderate-severe and severe erosion hazard potential upon disturbance activities.

Burn sections adjacent to the South Fork Breitenbush River corresponded to unburned/very low areas which are dominantly unconsolidated landforms. These provide some buffer to the upper dominant low burn soils. Following erosion response modeling estimations, the expected increase in sediment potential the first 2 years is 1.5 to 4 times which will be expected to be reduced directly with new vegetation regeneration and down woody debris accumulation.

Scorpion: Soil Burn Severity within the Little Devil is dominantly unburned/very low (73%). Some of the unburned/very low areas and most of the areas with low and moderate burn severity are part of soils naturally classified as moderate-severe and severe erosion hazard potential upon disturbance activities.

The Scorpion creek drainage runs in the center of the fire perimeter. Scorpion drainage slopes are buffer by unburned/very low ground cover areas and based on field assessment is a bedrock driven (basaltic/lava flow) and boulder drainage. Following erosion response modeling estimations the expected increase in sediment potential the first 2 years is 1.5 to 4 times which will be expected to be reduced directly with new vegetation regeneration and down woody debris accumulation.

Whitewater: Burn erosion response in the Whitewater fire perimeter is analyzed by location; areas inside and outside the wilderness. Burn severity inside the wilderness is mostly moderate and high, around 56% of the

wilderness area. Burn Severity outside the wilderness is dominantly unburned/very low and low. Soils within whitewater are classified as moderate, moderate to severe and severe erosion potential. These classifications are due to the type of parent material within the area such as unconsolidated rocks, intrusive ash flows, tuff materials and steep slopes.

Higher sediment/erosion response would occur within the Whitewater Creek watershed in the Jeff and Russel Creek which are tributaries to the Whitewater Creek. A minimal to moderate sediment/erosion response would occurs within the Pamela Creek Watershed into the Woodpecker Creek, this lower erosion response is due to the great amount of unburned/very low burn severity areas that buffering the headwater for upslope effects. Following erosion response modeling estimations the expected increase in sediment potential for the first 2 years is 4 times in the lower drainage outside of the wilderness and 20 times in the headwaters within the wilderness. The high amount of snags within the burn area and increase in quick revegetation response in the headwaters shows a good amount of down woody debris supplies and ground cover for a reduction and recuperation in the next 10 years.

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 Whitewater, Little Devil and Scorpion fire areas, 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 green cells rated out “low” or “very low”.

Whitewater, Little Devil and Scorpion Fires BAER - Forest Service Values At Risk Tracking Table

High / Very High Risk	
Intermediate Risk	
Low / Very Low Risk	

Category	Life/ Property/ Resources	Value at Risk	Threat to Value at Risk	Probability of Damage or Loss	Magnitude of Consequence	Risk	Treatment	Notes
Whitewater Fire								
Municipal Water Supply	Resources	Municipal Water Supply for community of Breitenbush	Erosion and transport of soils, ash and /or debris into Breitenbush River and its tributaries effected by increased post- fire flows.	Likely	Moderate	High	Letter of Notification in change of conditions as a result of fires	Water supply for Breitenbush are possibly affected by Whitewater & Little Devil Fires Community is already experiencing increased sedimentation in their filters. Agency will continue to communicate, but no effective treatment for treating the watershed
Municipal Water Supply	Resources	Municipal Water Supply for city of Salem and Detroit	Erosion and transport of soils, ash and /or debris into Breitenbush River and its tributaries effected by increased post- fire flows.	Possible	Minor	Low	No treatment	Water supply for Salem and Detroit are possibly affected by Whitewater, Little Devil & Scorpion Fires
Proposed Hydro Power Project	Life and Safety	Planned Hydro Power project on Russell Creek (infrastructure)	Increased post-fire flows and subsequent erosion and transport of soils, ash and /or debris in and around planned infrastructure locations	Likely	Moderate	High	Letter of Notification in change of conditions as a result of fires	Planned project is within the fire boundary. Pre-analysis is on-going. Risk associated with personnel within the watershed during a storm
Proposed Hydro Power Project	Property	Planned Hydro Power project on Russell Creek (infrastructure)	Increased post-fire flows and subsequent erosion and transport of soils, ash and /or debris in and around planned infrastructure locations	Unlikely	Minor	Very Low	Letter of Notification in change of conditions as a result of fires	Planned project is within the fire boundary. Project approval has not been finalized and infrastructure is not planned to be constructed within the one-year BAER timeframe

Hydro	Resources	Hydrologic function as it pertains to water quality in Breitenbush River and their impacted tributaries	Increased post-fire flows resulting in increased erosion and transport of soils, ash and/or debris	Possible	Minor	Low	Road treatments (R1 & R2) and Trail treatments (T1)	No individual channel treatments identified
Fisheries: Chinook Salmon	T&E	Occupied habitat for T&E fish species: chinook salmon	Increased post-fire flows and subsequent increased sedimentation resulting in degradation of spawning and rearing habitat	Likely	Moderate	High	Road treatments (R1 & R2) and Trail treatments (T1)	No individual channel treatments identified
Botany	Resources	Native and naturalized plant communities	Spread of invasive plants into native habitats and loss of habitat and species to high and moderate burn severity.	Likely	Moderate	High	Detection and treatment of new weed infestations (L1)	Known spotted knapweed, Canada thistle, and Scotch broom population adjacent to high and moderate severity burn areas. The spotted knapweed and Canada thistle are small populations and the district is relatively free of this invasive. It is critical to catch these populations early.
Northern Spotted Owl Habitat	T&E	Quality and quantity of Critical and Occupied Habitat for T& E species: spotted owl	Continued loss of Late Successional Reserves and Critical Habitat from post-fire wind and storm events and post-fire insect and disease	Likely	Minor	Low	No known effective treatment	Suboptimal home ranges are expected to remain suboptimal (as opposed to non-viable) and two other home ranges are expected to remain above threshold levels for functional territories even if some additional loss of habitat occurs in those home ranges.
Soils	Resources	Soil Productivity and Hydrologic Function	Increased post-fire surface runoff and erosion from high and moderate burn severity areas resulting in the loss of soil productivity and degraded water quality	Possible	Moderate	Low	No treatment	Loss in soil productivity and highly erosive soils is naturally occurring

Geology	Life and Safety	Human Life and Safety relative to travel on trails and roads	Increased post-fire mass movement, rockfall, surface runoff and erosion from high and moderate burn severity areas resulting in the loss of soil productivity, unvegetated slopes and rock exposure	Possible	Moderate	Intermediate	Road Warning signs (P1)	<p>Road Warning signs to be located at FSR 2243/ State Hwy 22 junction, FSR 2243 @ existing gate location, FSR 2200-040 @ existing gate location (60x48 signs)</p> <p>Rockfall signs in specific identified rockfall areas, both directions of travel, along FSR 2243, FSR 2243-440, and FSR 2200-040 (universal signs) and as identified by district personnel</p> <p>Landslide within fire perimeter in unburned and low burn and should be monitored</p>
Cultural Resources	Cultural Resources	Traditional Cultural Properties and Lithic Scatter	Increased post-fire erosion, debris flows and floods within the fire area resulting in impacts to a lithic scatter and Traditional Cultural Properties with an emphasis in Wildcheat Meadow Area	Likely	Moderate	High	Monitoring of cultural resource sites along with Consultation with Tribes (L2)	Area was accessed by team to evaluate concerns
Cultural Resources	Cultural Resources	Archeological resource values listed or eligible for listing on the National Register	Increased post-fire erosion, debris flows and floods resulting in exposure of listed or potentially eligible historic sites.	Unlikely	Moderate	Low	No treatment	Eight (8) potential sites within the fire perimeter
Danger Trees	Life and Safety	Human Life associated with travel on FSR 2243 (Whitewater Road) and 2200-040 (Woodpecker Ridge Road) and their associated local spur roads	Danger trees pose threat to Human Life and Safety traveling these roads	Likely	Major	Very High	Install closure device (see notes)	Even though there is a Very High Risk of damage or loss, closure gates have already been installed under suppression repair. The District is planning a danger tree abatement project in the spring of next year. Prior to opening the gates we recommend removal of trees with imminent failure potential. Also recommend putting up Road Warning Signs (W-P1) at the time the gates are opened.

Trailhead	Life and Safety	Human Life and safety associated with exposure at Trailheads and overflow parking areas	Hazard trees pose threat to Human Life and Safety adjacent to trailheads and overflow parking area	Possible	Major	High	Trailhead Hazard Tree Mitigation (TH1)	Access to these trailheads are currently closed until District Hazard/ Danger tree abatement Project is completed. However additional hazard trees are expected to develop after abatement treatment within the next year. Trailheads include Cheat Creek, Triangulation, Whitewater and Woodpecker Ridge. All of these trails connect to the PCT. At Whitewater Trailhead the distance from wilderness boundary to road is between 250 - 450 ft. Ensure treatments are consistent with wilderness values and policy within the boundary. Boundary is not signed.
Trails	Life and Safety	Human Life and Safety on trails located within or downslope/ downstream of the fire (see notes)	Hazards such as hazard trees, falling rock, flooding and debris pose threat to Human Life and Safety.	Possible	Major	High	Warning Signs (P2)	Trails affected: Breitenbush Gorge Trail #3369; Cheat Creek Trail #3441; Crag Trail #3364; Pacific Crest Trail #2000; Pamela Creek Trail #3439; South Breitenbush Trail #3375; Triangulation Trail #3373; Triangulation Peak Trail #3374; Whitewater Trail #3429; and Woodpecker Ridge Trail #3442 Warning sign(s) to be located at Trailheads
Trails	Property / Resources	Breitenbush Gorge Trail #3369	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Unlikely	Moderate	Low	No treatment	National Recreation Trail. Additional drainage and stabilization features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.

Trails	Property / Resources	Cheat Creek Trail #3441	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Possible	Moderate	Intermediate	No treatment	Wilderness Trail. Managed as an historic property (trail) Additional drainage features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.
Trails	Property / Resources	Crag Trail #3364	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Possible	Moderate	Intermediate	No treatment	Wilderness Trail. Additional drainage features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.
Trails	Property / Resources	Pacific Crest Trail #2000	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Likely	Moderate	High	Trail Stabilization/ Drainage (T1)	National Scenic Trail within Wilderness. Managed by the USFS as an historic property (trail) Additional drainage features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.

Trails	Property / Resources	Pamelia Creek Trail #3439	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Unlikely	Moderate	Low	No treatment	Wilderness Trail. Additional drainage features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.
Trails	Property / Resources	South Breitenbush Trail #3375	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Unlikely	Moderate	Low	No treatment	Wilderness Trail. Additional drainage features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.
Trails	Property / Resources	Triangulation Trail #3373	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Likely	Moderate	High	Trail Stabilization/ Drainage (T1)	Wilderness Trail. Additional drainage features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.
Trails	Property / Resources	Triangulation Peak Trail #3374	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Unlikely	Moderate	Low	No treatment	Wilderness Trail. Additional drainage features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.

Trails	Property / Resources	Whitewater Trail #3429	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Likely	Moderate	High	Trail Stabilization/ Drainage (T1)	Wilderness Trail. Additional drainage features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.
Trails	Property / Resources	Woodpecker Ridge Trail #3442	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Likely	Moderate	High	Trail Stabilization/ Drainage (T1)	Wilderness Trail. Additional drainage features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.
Dispersed Use Sites	Life and Safety	Human Life and safety at established dispersed use sites within the river flood plain and/or at base of potential rockfall areas	Increased post-fire flows and subsequent rockfall, erosion and transport of soils, ash and /or debris and flooding the areas in and around established dispersed use sites	Possible	Major	High	Warning Signs (P2)	Warning or Temporary Closure signs of site specific known disperse use camping site that could be effected and/or put occupants at risk of floods, rock fall, debris flows and other natural events
Wilderness Dispersed Campsites	Life and Safety	Human Life and safety at established dispersed camp sites within wilderness	Increased post-fire flows and subsequent rockfall, erosion and transport of soils, ash and /or debris, flooding and hazard trees the areas in and around established dispersed campsites	Likely	Major	Very High	Warning Signs (P2)	Warning signs particularly PCT (Trail #2000) and Whitewater Trail (#3429) at the trailheads with locations of high risk camp sites Temporary on-site closure or warning signs (site specific signs) in high risk campsites

Wild & Scenic River	Resources	Wild and Scenic River with "Eligible" Classification	Changed post-fire conditions that would degrade potential outstandingly remarkable values (ORVs)	Unlikely	Moderate	Low	No treatment	South Fork and main stem of Breitenbush River
Recreation Residences	Life and Safety	Human life and Safety relative to the Recreation Residences under Special Use Permits at the Breitenbush and Devil's Creek Tracts	Increased post-fire flows and subsequent erosion and transport of soils, ash and /or debris and flooding the areas in and around recreation residences	Possible	Moderate	Intermediate	Letter of Notification in change of conditions as a result of fires	
Recreation Residences	Property	Recreation Residences under Special Use Permits at the Breitenbush and Devil's Creek Tracts	Increased post-fire flows and subsequent erosion and transport of soils, ash and /or debris and flooding the areas in and around recreation residences	Possible	Moderate	Intermediate	No treatment	
Chemeketan (Thunderbird) Historic Cabin	Life and Safety	Historic cabin under Special Use Permit within the flood plain of Whitewater Creek	Increased post-fire flows and subsequent erosion and transport of soils, ash and /or debris and flooding the areas in and around Thunderbird Cabin	Unlikely	Major	Intermediate	Letter of Notification in change of conditions as a result of fires	Related to fire pit adjacent to the river
Chemeketan (Thunderbird) Historic Cabin	Property	Historic cabin under Special Use Permit within the flood plain of Whitewater Creek	Increased post-fire flows and subsequent erosion and transport of soils, ash and /or debris and flooding the areas in and around Thunderbird Cabin	Unlikely	Minor	Very Low	Letter of Notification in change of conditions as a result of fires	Historic cabin downstream of burn area, consultation with permittee. USFS does not own the structure.

Area Warning Signs	Life and Safety	Human life and safety relative to entering NFS burned area	Hazards such as hazard trees, falling rock and debris pose threat to human life	Likely	Major	Very High	Road Warning signs (P1)	<p>Road Warning signs to be located at FSR 2243/ State Hwy 22 junction, FSR 2243 @ existing gate location, FSR 2200-040 @ existing gate location (60x48 signs)</p> <p>Rock fall signs in specific identified rockfall areas, both directions of travel, along FSR 2243, FSR 2243-440, and FSR 2200-040 (universal signs) and as identified by district personnel</p> <p>Landslide within fire perimeter in unburned and low burn and should be monitored</p>
Roads	Life and Safety	Human Life and Safety along FSR 2243 (Whitewater Rd), FSR 2243-440 (plus spurs) and FSR 2200-040 (Woodpecker Rd)	Hazards such as hazard trees, falling rock and debris pose threat to Human Life and Safety.	Very Likely	Major	Very High	Install closure device (No treatment see notes)	Even though there is a Very High Risk of damage or loss, closure gates have already been installed under suppression repair. The District is planning a danger tree abatement project in the spring of next year. Prior to opening the gates we recommend removal of trees with imminent failure potential. Also recommend putting up Road Hazard Signs (W-P1) at the time the gates are opened.
Roads	Property / Resources	Roads within or directly downstream of the fire perimeter below high and moderate soil burn severity	Increased flood magnitude and hydrologic response resulting in loss or damage to roads and subsequent degradation of hydrologic function.	Likely	Moderate	High	Storm Patrol (R2)	Concentrate on Forest Service Roads that are at high risk to damage. These include FS roads 2243, 2243-440 (plus spurs) and 2200-040. Additionally Red Creek Crossing on the FSR 2246 and Whitewater Bridge on FSR 2243-440
Roads	Property / Resources	Forest Service Road 2243 and FSR 2243-440	Increased flood magnitude and hydrologic response resulting in loss or damage to roads and subsequent degradation of water quality	Likely	Moderate	High	Storm Proofing (R1)	Storm Proofing will increase the ability of the existing road drainage features to adequately handle anticipated post-fire flows in areas adjacent to and/or downslope of high/mod burn severity areas. Recommend seasonal restriction from March 1-July 15 and/or coordination with the district wildlife biologist on use of heavy equipment on Road 2243-440 to prevent disruption to nesting spotted owls.
Little Devil Fire								

Municipal Water Supply	Resources	Municipal Water Supply for community of Breitenbush	Erosion and transport of soils, ash and /or debris into Breitenbush River and it's tributaries effected by increased post-fire flows.	Likely	Moderate	High	Letter of Notification in change of conditions as a result of fires	Water supply for Breitenbush are possibly affected by Whitewater & Little Devil Fires Community is already experiencing increased sedimentation in their filters. Agency will continue to communicate, but no effective treatment for treating the watershed
Municipal Water Supply	Resources	Municipal Water Supply for city of Salem and Detroit	Erosion and transport of soils, ash and /or debris into Breitenbush River and its tributaries effected by increased post-fire flows.	Possible	Minor	Low	No treatment	Water supply for Salem and Detroit are possibly affected by Whitewater, Little Devil & Scorpion Fires
Hydro	Resources	Hydrologic function as it pertains to water quality in Whitewater and Breitenbush River and their impacted tributaries	Increased post-fire flows resulting in increased erosion and transport of soils, ash and/or debris	Possible	Minor	Low	No treatment	
Fisheries: Chinook Salmon	T&E	Occupied habitat for T&E fish species: chinook salmon	Increased post-fire flows and subsequent increased sedimentation resulting in degradation of spawning and rearing habitat	Possible	Minor	Low	No treatments	Concern with spawning chinook over next few months
Botany	Resources	Native and naturalized plant communities	Spread of invasive plants into native habitats and loss of habitat and species to moderate burn severity.	Likely	Moderate	High	Detection and treatment of new weed infestations (L1)	Known false brome population adjacent to moderate severity burn areas. These are small populations and the district is relatively free of this invasive. It is critical to catch these populations early.

Northern Spotted Owl Habitat	T&E	Northern Spotted Owl critical habitat and Late Successional Reserves	Continued loss of Late Successional Reserves and/or Critical Habitat through additional tree mortality from post-fire wind, mass soil movement and flooding events and post-fire insect and disease	Likely	Minor	Low	No effective treatment	Some additional suitable habitat will become unsuitable due to future mortality but three (3) suboptimal owl home ranges are expected to remain suboptimal therefore Minor Consequence
Soils	Resources	Soil Productivity and Hydrologic Function	Increased post-fire surface runoff and erosion from high and moderate burn severity areas resulting in the loss of soil productivity and degraded water quality	Unlikely	Moderate	Low	No treatment	Loss in soil productivity is naturally occurring
Geology	Life and Safety	Human Life and Safety relative to travel on trails and roads	Increased post-fire rockfall, surface runoff and erosion from high and moderate burn severity areas resulting in the loss of soil productivity, unvegetated slopes and rock exposure	Unlikely	Moderate	Low	No treatment	Mapped landslide located in a low burn severity and unburned area which the 870 road crosses
Cultural Resources	Cultural Resources	Archeological resource values eligible for National Register and Traditional Cultural Properties	Increased post-fire erosion, debris flows and floods resulting in exposure of listed or potentially eligible historic sites.	No known Values at Risk			No treatment	
Danger Trees	Life and Safety	Human Life associated with travel on FSR 2231-870 and its associated local spur roads	Danger trees pose threat to Human Life and Safety traveling the transportation system	Likely	Major	Very High	Install closure device (see notes)	Even though there is a Very High Risk of damage or loss, closure gates were installed under suppression repair. District is planning a danger tree abatement project in spring of next year. Prior to lifting closure we recommend removal of trees with imminent failure potential

Trailhead	Life and Safety	Human Life associated with South Breitenbush Trailhead and overflow parking area	Hazard trees pose threat to Human Life and Safety adjacent to trailhead and overflow parking area	Unlikely	Moderate	Low	No treatment	This trailhead is outside the fire boundary. This trailhead accesses Breitenbush Gorge Trail #3369, South Breitenbush Trail #3375, Crag Trail #3364 and Pacific Crest Trail #2000.
Trails	Life and Safety	Human Life and Safety on trails located within or downslope/ stream of the fire (see notes)	Hazards such as hazard trees, falling rock and debris pose threat to Human Life and Safety.	Possible	Major	High	Warning Signs (P2)	Trails affected: Breitenbush Gorge Trail #3369; Crag Trail #3364; and South Breitenbush Trail #3375 Warning sign(s) to be located at Trailheads
Trails	Property / Resources	Breitenbush Gorge Trail #3369	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Unlikely	Moderate	Low	No treatment	National Recreation Trail. Additional drainage and stabilization features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.
Trails	Property / Resources	Crag Trail #3364	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Possible	Moderate	Intermediate	No treatment	Wilderness Trail. Additional drainage features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.

Trails	Property / Resources	South Breitenbush Trail #3375	Trail infrastructure damage or loss associated with expected increase in post-fire runoff and erosion and subsequent degradation of water quality and wilderness characteristics	Unlikely	Moderate	Low	No treatment	Wilderness Trail. Additional drainage features are needed to protect trail tread in areas adjacent to/ or downslope of moderate/high burn severity areas on steeper grades to enhance ability to distribute anticipated post-fire flows. Work emphasis would be on maintaining wilderness characteristics. This activity includes mitigation of only those imminent hazard trees at trail treatment locations.
Dispersed Use Sites	Life and Safety	Established dispersed use sites within the river flood plain and/or at base of potential rockfall areas	Increased post-fire flows and subsequent rockfall, erosion and transport of soils, ash and /or debris and flooding the areas in and around established dispersed use sites	Possible	Moderate	Intermediate	Warning Signs (P2)	Warning or Temporary Closure signs of site specific known disperse use camping sites that could be effected and/or put occupants at risk of floods, rock fall, debris flows and other natural events
Recreation Residences	Life and Safety	Human life and Safety relative to the Recreation Residences under Special Use Permits at the Devil's Creek Tracks	Increased post-fire flows and subsequent erosion and transport of soils, ash and /or debris and flooding the areas in and around recreation residences	Possible	Moderate	Intermediate	Letter of Notification in change of conditions as a result of fires	Increase potential of larger peak flows
Recreation Residences	Property	Recreation Residences under Special Use Permits at Devil's Creek Track	Increased post-fire flows and subsequent erosion and transport of soils, ash and /or debris and flooding the areas in and around recreation residences	Possible	Moderate	Intermediate	No treatment	Increase potential of larger peak flows

Wild & Scenic River	Resources	Wild and Scenic River Classification, eligible	Changed post-fire conditions that would degrade potential outstandingly remarkable values (ORVs)	Unlikely	Moderate	Low	No treatment	South Fork and main stem of Breitenbush River
Area Warning Signs	Life and Safety	Human life and safety relative to entering NFS burn area	Hazards such as hazard trees, falling rock and debris pose threat to human life	Possible	Major	High	Road Warning signs (P1)	Road Warning signs to be located at the existing gate on FSR 2231-870
Roads	Life and Safety	Human Life and Safety along FSR 2231-870	Hazards such as hazard trees, falling rock and debris pose threat to Human Life and Safety.	Very Likely	Major	Very High	Install closure device (see notes)	Even though there is a Very High Risk of damage or loss, closure gates have already been installed under suppression repair. The District is planning a danger tree abatement project in the spring of next year. Prior to opening the gates we recommend removal of trees with imminent failure potential. Also recommend putting up Road Warning Signs (P1) at the time the gates are opened.
Roads	Property / Resources	Roads within or directly downstream of the fire perimeter below high and moderate soil burn severity	Increased flood magnitude and hydrologic response resulting in loss or damage to roads and subsequent degradation of hydrologic function.	Likely	Moderate	High	Storm Patrol (R2)	Concentrate on Forest Service Roads that are at high risk to damage. These include FSR 2231-870. Additionally Little Devil's Creek Crossing on FSR 2231-870 & FSR 2231-883 and South Fork of Breitenbush Crossing on FSR 4685-200 (Roaring Devil Bridge) Recommend seasonal restriction from March 1-July 15 and/or coordination with the district wildlife biologist on use of heavy equipment on Roads 2231-870 and 2231-883 to prevent disruption to nesting spotted owls.
Roads	Property / Resources	Forest Service Road 2231-870	Increased flood magnitude and hydrologic response resulting in loss or damage to roads and subsequent degradation of water quality	Likely	Moderate	High	Storm Proofing (R1)	Storm Proofing will increase the ability of the existing road drainage features to adequately handle anticipated post-fire flows in areas adjacent to and/or downslope of high/mod burn severity areas.
Scorpion Fire								

Municipal Water Supply	Resources	Municipal Water Supply for cities of Detroit and Salem	Erosion and transport of soils, ash and /or debris into Breitenbush and Santiam Rivers and their tributaries effected by increased post-fire flows.	Possible	Minor	Low	No treatment	Water supply for Salem and Detroit are possibly affected by Whitewater, Little Devil & Scorpion Fires
Hydro	Resources	Hydrologic function as it pertains to water quality in Whitewater and Breitenbush River and their impacted tributaries	Increased post-fire flows resulting in increased erosion and transport of soils, ash and/or debris	Unlikely	Minor	Very Low	No treatment	Displacement of soils will be none to minimal
Fisheries: Chinook Salmon	T&E	Occupied habitat for T&E fish species: chinook salmon	Increased post-fire flows and subsequent increased sedimentation resulting in degradation of spawning and rearing habitat	Unlikely	Minor	Very Low	No treatment	Scorpion flows into Breitenbush River
Botany	Resources	Native and naturalized plant communities under the powerlines	Spread of invasive plants into native habitats and loss of habitat and species to moderate burn severity.	Likely	Moderate	High	Letter of Notification in change of conditions as a result of fires	Known Scotch broom population under the powerlines. Infestations are adjacent to moderate burn severity areas.
Northern Spotted Owl Habitat	T&E	Northern Spotted Owl Critical Habitat and Occupied Suitable Habitat	Continued loss of Late Successional Reserves and/or Critical Habitat through additional tree mortality from post-fire wind, mass soil movement and flooding events and post-fire insect and disease	Likely	Minor	Low	No effective treatment	No known spotted owl nest sites occur within the fire perimeter. Some suitable habitat will become unsuitable or dispersal-only habitat during the next decade due to post-fire tree mortality.

Soils	Resources	Soil Productivity and Hydrologic Function	Increased post-fire surface runoff and erosion from high and moderate burn severity areas resulting in the loss of soil productivity and degraded water quality	Possible	Moderate	Low	No treatment	Loss in soil productivity is naturally occurring
Geology	Life and Safety	Human Life and Safety relative to travel on trails and roads	Increased post-fire rockfall, surface runoff and erosion from high and moderate burn severity areas resulting in the loss of soil productivity, unvegetated slopes and rock exposure	Unlikely	Moderate	Low	No treatment	
Danger Trees	Life and Safety	Human Life associated with travel on FSR 4600-045 and their associated local spur roads	Danger trees pose threat to Human Life and Safety traveling the transportation system	Likely	Major	Very High	Install closure device (see notes)	Even though there is a Very High Risk of damage or loss, closure gates have already been installed under suppression repair. The District is planning a danger tree abatement project in the spring of next year. Prior to opening the gates we recommend removal of trees with imminent failure potential. Also recommend putting up Road Warning Signs (P1) at the time the gates are opened.
Cultural Resources	Cultural Resources	Archeological resource values eligible for National Register and Traditional Cultural Properties	Increased post-fire erosion, debris flows and floods resulting in exposure of listed or potentially eligible historic sites.	Unlikely	Moderate	Low	No treatment	Sites were treated under suppression and no impacts are anticipated

Dispersed Use Sites	Life and Safety	Established dispersed use sites within the river flood plain and/or at base of potential rockfall areas	Increased post-fire flows and subsequent rockfall, erosion and transport of soils, ash and /or debris and flooding the areas in and around established dispersed use sites	Unlikely	Moderate	Low	No treatment	14% increase in 2 year peak flows as a result in fire
Wild Scenic River	Resources	Wild and Scenic River Classification, eligible	Changed post-fire conditions that would degrade potential outstandingly remarkable values (ORVs)	Unlikely	Moderate	Low	No treatment	Main stem of Breitenbush River
Scenic Bikeway/ Byway	Life and Safety	Life and Safety along the Cascading River Bikeway and West Cascade Scenic Byway	Changed post-fire conditions that would increase hazards such as rockfall, flooding and debris flows	Unlikely	Moderate	Low	No treatment	14% increase in 2 year peak flows as a result in fire Rockfall should not increase beyond current conditions
Danger Trees along Roads	Life and Safety	Human Life and Safety along powerline roads	Hazards such as hazard trees, falling rock and debris pose threat to Human Life and Safety.	Possible	Major	High	Partnership Coordination included in treatment Road Warning Signage (P1)	Roads managed by Power Company
Roads	Property / Resources	Road crossing of Scorpion Creek at FSR 46 just downstream of the fire perimeter below high and/or moderate soil burn severity	Increased flood magnitude and hydrologic response resulting in loss or damage to roads and subsequent degradation of hydrologic function.	Possible	Moderate	Intermediate	No treatment	Roads managed by Power Company. Forest will also concentrate, during storm patrolling Little Devil Fire, the road crossing of Scorpion Creek at FSR 46

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 to natural and cultural resources. The application of these BAER treatments are expected to minimize on-site and downstream damages to the identified values at risk previously mentioned. The emergency treatments being recommended by the Whitewater Fire Complex BAER Team are specifically designed to achieve the following results.

Proposed Land Treatments

The objective of the land treatments are to:

1. Promote and protect native and naturalized vegetative recovery by reducing the spread of noxious weeds (L1).
2. Monitor and protect post-fire impacts to Traditional Cultural Properties with an emphasis in Wildcheat Meadow Area along with consultation and communication with local tribes (L2)

Proposed Road and Trail Treatments

The objective of the road and trail treatments are to:

1. Protect road and trail investments from becoming damaged due to increased post-fire run-off within and directly downstream and down slope of the moderate and high soil burn severity areas within the fires (R1, R2, T1)
2. Reduce the potential for roads and trails to act as a conduit for overland flow and increasing sediment loading (R1, R2, and T1)
3. Improve road and trail drainage by increasing ditch and catchment basin capacity to reduce the potential for road failure due to increased flows (R1, R2, and T1)
4. Reduce road and trail-related hazards related to the burned area (P1, R1, R2, and T1)

Proposed Protection/Safety Treatments:

The objective of the protection/safety treatments are to:

1. Protect human life and safety by raising awareness through posting hazard warning signs at recreation sites, trailheads, and when entering the burn area and traveling FSR 2243, FSR 2243-440, FSR 2200-040, FSR 2231-870, and their spurs. (P1 and P2)
2. Coordinate with district special use permittees on potential drainage improvements on their permitted easements (R2)
3. Protect worker and public safety by removing hazard trees at trailheads and within the vicinity of road and trail work. (TH1, T1, R1, and R2)

Proposed Channel Treatments:

There are no proposed channel treatments.

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

Land NA % Channel NA % Roads/Trails 75 % Protection/Safety 90 %

Lands – weeds and Traditional Cultural Properties are both monitoring for impacts and then treating those impacts to reduce the risk of further damage or loss

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	70	75	80
Channel	NA	NA	NA
Roads/Trails	90	90	90
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 \$2,287,500.

F. Cost of Selected Alternative (Including Loss): Total cost of the action alternative (including loss) is \$637,500.

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input checked="" type="checkbox"/> Geology	<input type="checkbox"/> Range	<input checked="" type="checkbox"/> Recreation
<input checked="" type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering	<input type="checkbox"/> Public Information
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany/Invasives	<input checked="" type="checkbox"/> Archaeology	<input checked="" type="checkbox"/> Hydrology
<input checked="" type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS	

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

Email: plfisher@fs.fed.us **Phone:** 541-383-5633
rtanner@fs.fed.us 541-383-5566

Team Members:

Kyle Wright – Hydrology
Leah Tai - Hydrology
Bart Wills - Geology
Lizandra Nieves-Rivera – Soils
Lynn Khuat – Soils
Suzanne Cable - Recreation
Alice Smith – Botany/Invasive Plants

Joe Doerr - Wildlife
Tom Walker - Fisheries
Mike Howard – Engineering
Evan Wernecke - Engineering
Paul Claeysens - Archaeology
Dorothy Thomas - GIS
Erin Hooten – Hazard Tree Specialist

H. Treatment Narrative:

Land Treatments:

Whitewater - L1 - Invasive Weed Detection and Treatment: Invasive plant surveys and treatment along the Forest Service roads that were of high to moderate burn severity and where non-native invasive plants are absent or present in small amounts, will be necessary to prevent spread and dispersal of non-native invasive plants into newly burned and disturbed areas. Although moderate burned areas may have some intact

vegetation or may experience needle fall, it is not sufficient to prohibit the spread and establishment of invasive plants. Key species that will be targeted for control are Scotch broom on Whitewater Road, and spotted knapweed and Canada thistle on Woodpecker Road. Early Detection/Rapid Response will focus on locations adjacent to known weed sites, where fire suppression may have introduced invasive plants and road systems that have been previously disturbed and will have a greater potential for invasive plants to establish. The road systems are primary vectors for weed spread and EDRR will allow treatments to occur before these species are able to spread.

Survey will occur on approximately 400 acres and estimated invasive plant treatments to occur across 30 acres. Total request for Whitewater Fire is for \$8,500

Treatment	Units	Unit Cost	# of Units	Total Cost
EDRR Invasive Plant Surveys/detection	Acres	\$10.00	400	\$4,000
EDRR Invasive Plant Treatments	Acres	\$150.00	30	\$4,500
Total				\$8,500

Little Devil - L1 - Invasive Weed Detection and Treatment: The key species in this area is false brome that is located along two roads on either side of the fire. The Detroit District has very little false brome and its potential to spread is quite high. These are small roadside sites that were driven over many times during the fire. The seeds are awned and have high viability. They are easily picked up by vehicle tires. False brome spreads very quickly due to the high seed viability and high seed abundance. If untreated it is likely to spread into the fire area. The road systems are primary vectors for false brome spread. Other districts on the Willamette National Forest spend considerable resources on controlling false brome. Total request for Little Devil Fires is for \$1,700.

Treatment	Units	Unit Cost	#of Units	Total Cost
EDRR Invasive Plant Surveys/detection	Acres	\$10.00	20	\$200
EDRR Invasive Plant Treatments	Acres	\$150.00	10	\$1,500
Total				\$1,700

Total Request for Invasive Weed Detection and Treatment is \$10,200

Whitewater - L2 – Cultural Resource Monitoring: This BAER Land Treatment consists of; 1) Archaeological BAER Field Monitoring of a lithic scatter and a site with culturally modified trees (CMTs) that were assessed as having a High Risk of damage to critical cultural resources as defined by BAER, and 2) Agency S.106 Consultation and Tribal Government-to-Government Consultation with Treaty Tribes and Tribes with vested interest in the culturally modified trees (Site 18060400390) and professional archaeologist oversight of BAER treatments. **Total request is for \$2,320**

Treatment	Units	Unit Cost	#of Units	Total Cost
Cultural Resource Monitoring	Days	\$290.00	8	\$2,320

Road and Trail Treatments:

R1 – Storm Proofing: Storm proof drainage features where identified. Activity will include cleaning culverts and increasing ditch and catchment basin capacity where they exist to handle post-fire flows, sediment and debris. on segments of the 2243, 2243-440, and 2231-870 roads. **Total request: \$8,400**

Treatment	Units	Unit Cost	# of Units	Total Cost
W-R1 Whitewater Fire Storm Proofing	Miles	\$3,825	1.7	\$6,500
LD-R1 Little Devil Fire Storm Proofing	Miles	\$3,825	0.5	\$1,720

R2 – Storm Patrol: Storm inspection/response will keep culvert and drainage features functional by cleaning sediment and debris from in and around features between or during storms. Special attention should be given to the following stream crossings and bridges; FSR 46 Scorpion Creek crossing, FSR 2231-870 Devil Creek crossing, FSR 2246 Red Creek crossing, FSR 2243-440 South Whitewater Bridge, FSR 4685-200 Roaring Devil Bridge. This work will be accomplished through Forest Service Road Crew, equipment rental, general labor, and existing road maintenance IDIQ contracts. (see treatment map for included roads). **Total request is for \$10,890**

Treatment	Units	Unit Cost	# of Units	Total Cost
W-R2 Whitewater Fire Storm Patrol	Days	\$1,210	6	\$7,260
LD-R2 Little Devil Fire Storm Patrol	Days	\$1,210	3	\$3,630

TH1 – Trailhead Hazard Tree Abatement: Hazard trees with imminent failure potential are located at trailhead overflow parking areas throughout the Whitewater Fire – up to 90 at Whitewater Trailhead and 40 at Woodpecker Ridge Trailhead. They should be mitigated according to the guidelines provided in the Region 6 Field Guide for Hazard-Tree Identification and Mitigation on Developed Sites in Oregon and Washington Forest. Some hazard trees at the Whitewater Trailhead may be inside the Wilderness boundary and should be treated according to Wilderness values and principles. Delayed post-fire effects such as insect attacks can create additional hazard trees. **Total request is for \$6,500**

Treatment	Units	Unit Cost	# of Units	Total Cost
TH1 – Hazard Tree Abatement	Each	\$50	130	\$6,500

T - Trail Stabilization/Drainage - Work will include installing drainage (rolling grade dips, grade reversals), water bars, stabilization of trail tread and snagging trees as appropriate for worker safety. This work is necessary to protect the trail infrastructure by diverting anticipated increases in surface runoff off the trail and mitigating erosion in areas of moderate or high soil burn severity. This request also includes felling of hazard trees at trail work locations for worker safety. Trails receiving treatment include Whitewater Trail #3429, Pacific Crest Trail #2000, Triangulation Trail #3373 and Woodpecker Ridge Trail #3442. **Total request is for \$73,500**

Trail Name & #/Treatment	Units	# of Units	Unit Cost	Total Cost
T1- Trail Stabilization/Drainage	Miles	10.5	\$7,000	\$73,500

Protection/Safety Treatments:

P1 – Road Warning Signage: Signs will inform users of the dangers associated with entering and recreating within the burned area. Signs should be installed prior opening of road closure gates. Large signs to be located at the FSR 2243/ State Highway 22 junction, existing gate location on FSR 2243, the existing gate location on 2200-040, and the existing gate location on 2231-870, and small signs to be installed in both directions of travel at identified rockfall/debris areas. Two known locations for rockfall signage are along FSR 2243 near the Whitewater Trailhead and FSR 2200-040 to the Woodpecker Ridge Trailhead (see geology report for recommendations). **Total request is for \$8,640**

Treatment	Units	Unit Cost	# of Units	Total Cost
W-P1 Whitewater Fire Installation of warning signage	Each	\$720	8	\$5,760
LD-P1 Little Devil Fire Installation of warning signage	Each	\$720	4	\$2,880

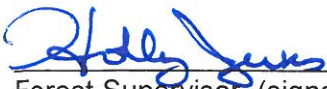
P2 - Warning Signage: Signs include trail and dispersed use site warning signs at Wilderness trailheads leading into the area, dispersed site warning signs where flood or rock fall analysis determine an intermediate, high or very high risk to human life and safety both inside and outside the wilderness. In addition to the initial installation, there will be a need to monitor and reinstall signage as it becomes worn or is otherwise damaged. Cost includes supplies and labor to install both inside and outside of the wilderness. Locations are listed in the recreation specialist report. **Total request is for \$23,785**

Treatment	Units	Unit Cost	# of Units	Total Cost
Warning Signs	Sign/Post	\$355	67	\$ 23,785

Part VI – Emergency Stabilization Treatments and Source of Funds

Line Items	Units	Unit Cost	NFS Lands		Other \$
			# of Units	BAER \$	
A. Land Treatments					
W-L1: EDRR Invasive Weed Detection	acres	\$ 10	400	\$4,000	\$0
W-L1: EDRR Invasive Weed Treatment	acres	\$ 150	30	\$4,500	
LD-L1: EDRR Invasive Weed Detection	acres	\$ 10	20	\$200	\$0
LD-L1: EDRR Invasive Weed Treatment	acres	\$ 150	10	\$1,500	
W-L2: Cultural Resource Monitoring	days	\$ 290	8	\$2,320	
<i>Insert new items above this line!</i>				\$0	\$0
<i>Subtotal Land Treatments</i>				\$12,520	\$0
B. Channel Treatments					
No treatments recommended				\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0
<i>Subtotal Channel Treatments</i>				\$0	\$0
C. Road and Trails					
W-R1: Storm proofing	miles	\$ 3,825	1.7	\$6,503	\$0
W-R2: Storm patrol	each	\$ 1,210	6	\$7,260	\$0
LD-R1: Stormproofing	each	\$ 3,825	1	\$1,913	\$0
LD-R2: Storm Patrol	days	\$ 1,210	3	\$3,630	\$0
T1: Trail Stabilization	miles	\$ 7,000	11	\$73,500	\$0
<i>Insert new items above this line!</i>				\$0	\$0
<i>Subtotal Road and Trails</i>				\$92,805	\$0
D. Protection/Safety					
TH1: Trailhead Hazard Tree Mitigation	Tree	\$ 50	130	\$6,500	\$0
W-P1: Road Warning Signage	Sign	\$ 720	8	\$5,760	\$0
W-P2: Warning Signage	Sign	\$ 355	67	\$23,785	\$0
LD-P1: Road Warning Signage	Sign	\$ 720	4	\$2,880	\$0
LD-P2: Warning Signage	Sign	\$ 150	2	\$300	\$0
<i>Insert new items above this line!</i>				\$0	\$0
<i>Subtotal Protection/Safety</i>				\$39,225	\$0
E. BAER Evaluation					
Initial Assessment	Report			\$49,110	\$0
<i>Insert new items above this line!</i>				---	\$0
<i>Subtotal Evaluation</i>				---	\$0
F. Monitoring					
<i>Insert new items above this line!</i>				\$0	\$0
<i>Subtotal Monitoring</i>				\$0	\$0
G. Totals				\$144,550	\$0
Previously approved					
Total for this request				\$144,550	

PART VII - APPROVALS

1. 
Forest Supervisor (signature)

10/23/17
Date

2. _____
Regional Forester (signature)

Date