

Date of Report: November 7, 2018

BURNED-AREA REPORT
(Reference FSH 2509.13)**PART I - TYPE OF REQUEST****A. Type of Report**

1. Funding request for estimated emergency stabilization funds
 2. Accomplishment Report
 3. No Treatment Recommendation

B. Type of Action

1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)
 2. **Interim Report #1**
[X] 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 DESCRIPTIONA. Fire Name: Natchez FireB. Fire Number: OR-RSF-000348C. State: CAD. County: Siskiyou and Del Norte CountiesE. Regions: 5 and 6F. Forest: Klamath and Rogue River-SiskiyouG. District: Happy Camp/Oak Knoll (KNF)
Wild Rivers (RRSNF) Ranger DistrictsH. Fire Incident Job Code: P6L0LU (0610)I. Date Fire Started: July 15, 2018J. Date Fire Contained: 84% contained as of 9/27/2018K. Suppression Cost: \$43.5 million as 9/28/18L. Fire Suppression Damages Repaired with Suppression Funds: 45 miles of dozer lines have been repaired.
Suppression repair activities are on-going within the fire area and will continue through fire containment.

M. Watershed Numbers:

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
HUC #	Watershed Name	Total Acres	Acres Burned	% Watershed Burned
180102090403	Lower Clear Creek	21,847	5	0.02%
171003110301	Upper East Fork Illinois River	10,319	4	0.04%
180102090102	Upper Indian Creek	26,743	3,129	11.70%
180102090601	Oak Flat Creek-Klamath River	20,944	30	0.14%
171003110302	Dunn Creek	16,508	4,465	27.05%
180102090402	Upper Clear Creek	39,438	24	0.06%
180102090401	Tenmile Creek	10,065	1,670	16.59%
180102090104	Lower Indian Creek	15,900	44	0.28%
180102090101	South Fork Indian Creek	31,829	24,231	76.13%

N. Total Acres Burned: 33,603 (as of September 10, 2018)

Klamath NF Acres	Rogue River Siskiyou NF Acres	Private	Total Acres
28,926	4,471	205	33,603

O. Vegetation Types:

Conifer forest within the burn area are dominated by Douglas-fir (*Pseudotsuga menziesii*), sugar pine (*Pinus lambertiana*), white and red fir (*Abies concolor* and *A. magnifica*), Port Orford Cedar (*Chamaecyparis lawsoniana*) and incense cedar (*Calocedrus decurrens*), with understories comprised of big leaf maple (*Acer macrophyllum*), saddlers oak (*Quercus sadleriana*), and green leaf manzanita (*Arctostaphylos patula*). Burned areas within the Siskiyou Wilderness include high concentrations (~15 species) of relic and rare conifers including: Brewer's spruce (*Picea breweriana*), and Alaska yellow cedar (*Callitropsis nootkatensis*).

P. Dominant Soils:

Soils within the fire area are composed mostly of very gravelly loams derived from ultramafic and metamorphic parent materials. Soil depths range from 20 inches to over 200 inches. Clallam, Goldridge, Deadwood, Jayar, Woodseye, Dubakella are the dominant soil series in the fire area.

Q. Geologic Types:

The Natchez Fire took place upon the Western Paleozoic and Triassic Terrane. The bedrock is mostly composed of Jurassic ultramafic bedrock that is fully to partially serpentined. Smaller portions of the bedrock is Permian metasediments composed of argillites, metacherts, volcaniclastic breccias. Plutonic igneous bodies include: Permian aged diabase and tonalite from the volcanic activity that occurred in the region during the Mesozoic Era.

R. Miles of Stream Channels by Order or Class:

Stream Class (miles) – Klamath NF		
Perennial, fish	Perennial, non-fish	Intermittent/Ephemeral
19	33	9

Stream Class (miles) – Rogue River Siskiyou NF		
Perennial, fish	Perennial, non-fish	Intermittent/Ephemeral
0	15	0

S. Transportation System

Trails: 15 miles (15 miles Klamath NF, 0 miles Rogue River- Siskiyou NF)

Roads: 77 miles

Operational Maintenance Level	Klamath National Forest	Rogue River – Siskiyou National Forest
1 - BASIC CUSTODIAL CARE (CLOSED)	28	7
2 - HIGH CLEARANCE VEHICLES	15	13
3 - SUITABLE FOR PASSENGER CARS	14	0
Grand Total	57	20

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Owner	Unburned	Low	Moderate	High	Grand Total
Klamath NF	4972	16597	7056	301	28926
Rogue River Siskiyou NF	1496	2239	670	66	4471
Private	55.32	123	27	0	205
Total	6523 (19.4%)	18959 (56.4%)	7754 (23.1%)	367 (1.1%)	33603

B. Water-Repellent Soil (acres): 13,764 acres

C. Soil Erosion Hazard Rating (acres): 3, 683 (low) 9,959 (moderate) 15,483 (high)

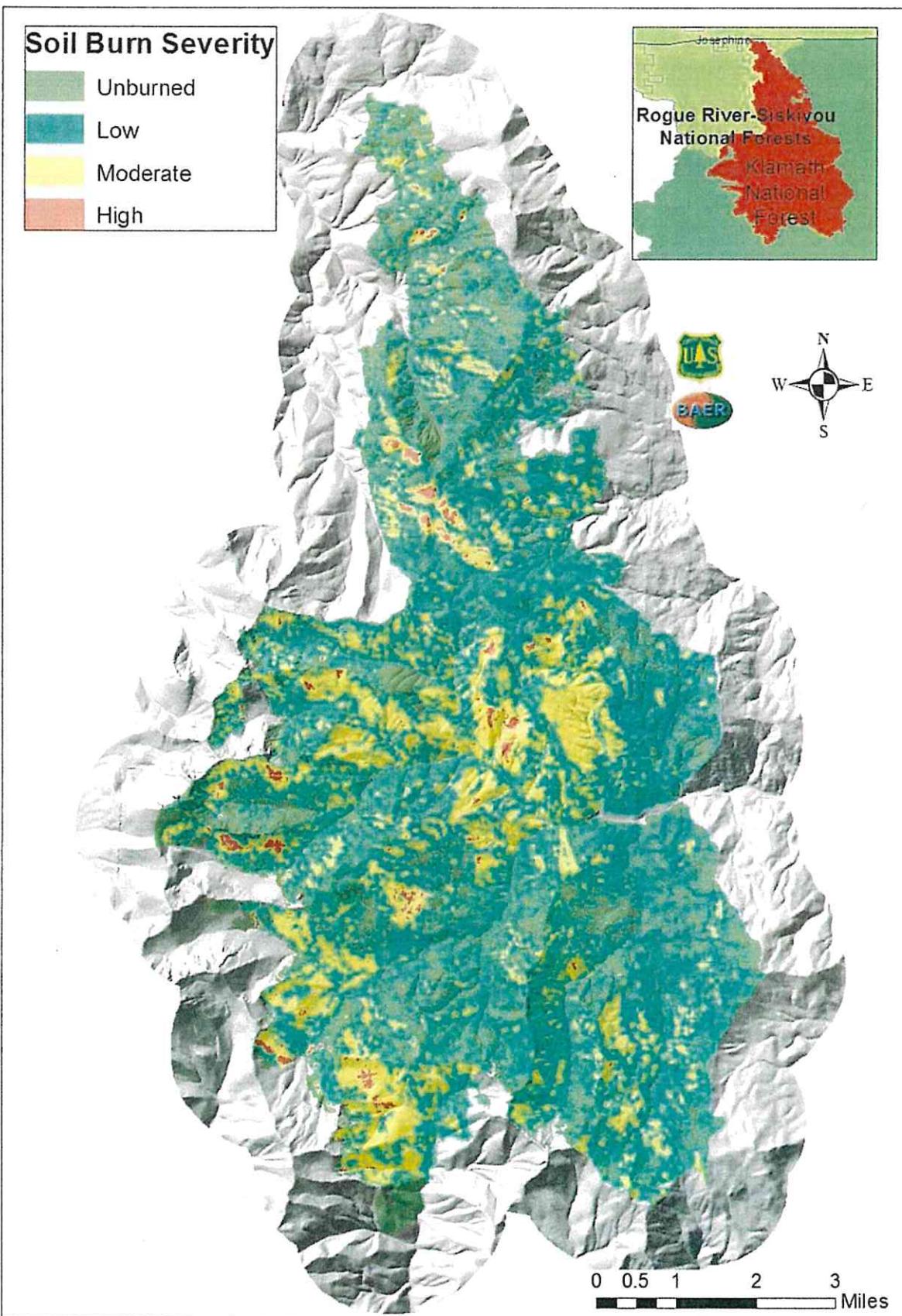
D. Erosion Potential: 7.4 tons/acre

E. Sediment Potential: 1, 984 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period	2 to 5 years
B. Design Chance of Success	90 %
C. Equivalent Design Recurrence Interval	5 years
D. Design Storm Duration	6 hours
E. Design Storm Magnitude	2.5 inches
F. Design Flow	217 cfs / mi ²
G. Estimated Reduction in Infiltration	49%
H. Adjusted Design Flow	337 cfs / mi ²

Natchez Fire
Final Soil Burn Severity - September 24, 2018



PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Category	Life/ Property/ Resources	Critical Value	Threat to Value	Probability of Damage or Loss	Magnitude of Consequence	Risk	Treatment Recommend ations	Comments
Klamath National Forest								
Natural Resources	Native Plant Communities un-infested by noxious weeds	Along dozer and hand lines where soil disturbance has occurred in the fire area.	Fire-caused disturbances create conditions for noxious weed invasion and expansion. If emergency mitigation activities are not implemented this problem will expand and will require future extensive resources to manage.	Very Likely	Major	Very High	Early Detection/Rapid Response	Survey and treatment of noxious weeds to mitigate risks of introduction and spread of noxious weeds into native plant communities from firelines
Natural Resources	Native Plant Communities un-infested by noxious weeds	Native plant communities in moderate to high severity burned areas immediately adjacent to roads. These areas are currently weed free and at risk for weed invasions.	Fire-caused disturbances create conditions for noxious weed invasion and expansion. If emergency mitigation activities are not implemented this problem will expand and will require future extensive resources to manage.	Very Likely	Major	Very High	Early Detection/Rapid Response	Survey and treatment of noxious weeds to mitigate risks of introduction and spread of noxious weeds into native plant communities from roads.
Natural Resources	Coho Salmon	Aquatic Habitats	Soil loss from post-fire erosion can cause flashier hydrologic response and subsequent degradation to aquatic habitats, including critical habitat for ESA listed species, Coho salmon.	Likely	Moderate	High	Recommended road treatments will protect aquatic habitat.	Within the burned area, Indian Creek and West Fork Indian Creek are critical habitat for listed ESA species Coho salmon.
Natural Resources	Soils	Soil Productivity	Soils within high and moderate soil burn severity are at risk of hillslope erosion, mass wasting, and surface runoff which would reduce short term soil productivity and increase overland flow.	Possible	Moderate	Intermediate	No treatment recommendations	There is vegetation already coming in post-fire (bracken fern, big leaf maple, and other shrubs and forbs) and in some areas there is needle/leaf litter accumulation that will add a natural mulch layer.
Property	Roads	17N32, 17N28, 18N30, 18N33	2.3 miles of road were identified for treatment within level 2-3 road systems that are at a likely to be damaged and have a moderate magnitude of consequences.	Likely	Moderate	High	Ditch and culvert cleaning	Proposed treatments include cleaning culverts, catch basins, and ditch cleaning,
Property	Resources /Roads	Culvert on 17N32	Culvert is undersized and has diversion potential. The crossing is adjacent to an active slide on the 17N32 road	Likely	Major	Very High	Install critical dip	Crossing is near Coho critical habitat on South Fork Indian Creek

Category	Life/ Property/ Resources	Critical Value	Threat to Value	Probability of Damage or Loss	Magnitude of Consequence	Risk	Treatment Recommend ations	Comments
Property	Roads	Bridge on West Fork Indian Creek, FS road 17N32	Logs and debris have racked up on the bridge reducing its capacity	Likely	Moderate	High	Remove logs and debris	Logs and debris can be removed with an excavator and placed at a location that will not impact the bridge
Property	Roads	Blocked culvert on 18N30	The culvert is completely blocked and needs to be cleaned. An overflow culvert and an armored dip is already in place	Likely	Moderate	High	Clean culvert and catch basin	A large excavator is needed to reach the culvert inlet.
Property	Roads	17N32, 17N28, 17N11, 16N08, 17N46, 18N30, 18N33, 18N36, 18N45	Roads that cross through or are located downslope of moderate and high soil burn severity areas are subject to increases in runoff, sediment, and debris. These threats pose a risk to road systems where drainage failure is possible.	Likely	Moderate	High	Storm Inspection and Response	Priority roads for storm inspection and response should be arterial roads followed by lower operational maintenance level roads
Human Life and Safety	Roads	Interior Roads to Fire Area - Hazard Trees	Hazard trees are prevalent and pose a major threat to human life and safety. There is still an inherent risk for more hazard trees to fall within the burned area throughout the winter of 2018-2019.	Possible	Major	High	Temporary Road Closures and Hazard Warning Signs	Hazard warning signs will be placed at entry points in the fire. Temporary road closure is recommended on interior roads that have not been treated for hazard trees
Property	Trails	Kelly Lake Trail	Kelly Lake is a high use trail that has been impacted by moderate soil burn severity. The trail is at risk of erosion during rain and spring snowmelt events	Likely	Moderate	High	Build drainage structures, backfill burned stump holes	2.5 miles of trail impacted
Property	Trails	Clear Creek National Recreation Trail, Rattlesnake Meadows Trail, Raspberry Lake Trail	Trails impacted by moderate and high soil burn severity are at risk of loss during fall rains and spring runoff.	Likely	Moderate	High	Build drainage structures, backfill burned stump holes	4.86 miles of trail impacted
Cultural Resources	Resources	Archeological and historic sites	Only one known site impacted within the fire perimeter. The site is not at risk for additional damage	Unlikely	Moderate	Low	None	

Category	Life/ Property/ Resources	Critical Value	Threat to Value	Probability of Damage or Loss	Magnitude of Consequence	Risk	Treatment Recommend ations	Comments
Rogue River-Siskiyou National Forest								
Natural Resources	Native Plant Communities un-infested by noxious weeds	Along dozer and hand lines where soil disturbance has occurred in the fire area.	Fire-caused disturbances create conditions for noxious weed invasion and expansion. If emergency mitigation activities are not implemented this problem will expand and will require future extensive resources to manage.	Very Likely	Major	Very High	Early Detection/Rapid Response	Survey and treatment of noxious weeds to mitigate risks of introduction and spread of noxious weeds into native plant communities from firelines
Natural Resources	Native Plant Communities un-infested by noxious weeds	Native plant communities in moderate to high severity burned areas immediately adjacent to roads. These areas are currently weed free and at risk for weed invasions.	Fire-caused disturbances create conditions for noxious weed invasion and expansion. If emergency mitigation activities are not implemented this problem will expand and will require future extensive resources to manage.	Very Likely	Major	Very High	Early Detection/Rapid Response	Survey and treatment of noxious weeds to mitigate risks of introduction and spread of noxious weeds into native plant communities from roads.
Natural Resources	Coho Salmon	Aquatic Habitats	Soil loss from post-fire erosion can cause flashier hydrologic response and subsequent degradation to aquatic habitats, including critical habitat for ESA listed species, Coho salmon.	Likely	Moderate	High	Recommended road treatments will protect aquatic habitat.	Within the burned area, Poker Creek and Dunn Creek are critical habitat for listed ESA species Coho salmon.
Natural Resources	Soils	Soil Productivity	Soils within high and moderate soil burn severity are at risk of hillslope erosion, mass wasting, and surface runoff which would reduce short term soil productivity and increase overland flow.	Possible	Moderate	Intermediate	No treatment recommendations	There is vegetation already coming in post-fire (bracken fern, big leaf maple, and other shrubs and forbs) and in some areas there is needle/leaf litter accumulation that will add a natural mulch layer.
Property	Roads/Property and Life	4808, 4904-060, 4810-012	1.2 miles of road were identified for treatment within level 2-3 road systems that are at a likely to be damaged and have a moderate magnitude of consequences.	Likely	Moderate	High	Ditch and culvert cleaning	Proposed treatments include cleaning culverts, catch basins, and ditch cleaning,
Property	Resources	Culvert on 4904-060	Culvert is undersized and has overtopped recently taking out about half of the fill at the crossing. The crossing is within 1/10 of a mile of Poker Creek	Likely	Major	Very High	Remove culvert and road fill to prevent additional sediment from entering	The 4904-060 road ends less than ¼ mile away.

Category	Life/ Property/ Resources	Critical Value	Threat to Value	Probability of Damage or Loss	Magnitude of Consequence	Risk	Treatment Recommendations	Comments
						High	Poker Creek	
Property	Resources	Blocked culvert on 4904-060	The 18 inch culvert is completely blocked and has diversion potential. If culvert fails, sediment will enter directly into Poker Creek	Likely	Moderate	High	Clean culvert catch basin, install armored dip	This crossing is beyond the proposed culvert removal site. This treatment is designed to make the crossing self-sustaining because access will be limited for storm patrol and response
Property	Property	4808, 4904-060, 4810-012	Roads that cross through or are located downslope of moderate and high soil burn severity areas are subject to increases in runoff, sediment, and debris. These threats pose a risk to road systems where drainage failure is possible.	Likely	Moderate	High	Storm Inspection and Response	Priority roads for storm inspection and response should be arterial roads followed by lower operational maintenance level roads
Human Life and Safety	Human Life and Safety	Interior Roads to Fire Area - Hazard Trees	Hazard trees are prevalent and pose a major threat to human life and safety. There is still an inherent risk for more hazard trees to fall within the burned area throughout the winter of 2018-2019.	Possible	Major	High	Temporary Road Closures and Hazard Warning Signs	Hazard warning signs will be placed at entry points in the fire. Temporary road closure is recommended on interior roads that have not been treated for hazard trees
Cultural Resources	Resources	Archeological and historic sites	No known archaeological sites within the fire perimeter in the RRS	Unlikely	Moderate	Low	None	

Human Life and Safety

The Natchez fire is surrounded by communities that utilize National Forest lands for a variety of public interests including recreating, hunting, and firewood gathering. The post-fire environments in the Natchez Fire include elevated threats to forest visitors, residents of adjacent private lands, and Forest Service employees who work, travel through, and recreate in National Forest lands. Threats to human life and safety include loss of ingress and egress within the burned area, hazard trees, rock fall, and debris flows. These threats exist along road and trail corridors. Where road systems have not been treated for hazard trees under fire suppression, roads still pose a *possible* and *major* threat to human life and safety.

On the Klamath National Forest, the Poker Flat-Young's Valley and Kelly Lake-Poker Flat trails have been impacted by fire. Falling trees, rocks, and damage to the trail prism are all hazards that could impact the public. Signs warning of the hazards of entering a burned area will be posted at trailheads.

Property

The Natchez fire include 77 miles of National Forest System Roads (FSR) and 10 miles of National Forest System trails within the burned area. Post-burn conditions and the predicted watershed response indicate the potential for an increase in runoff, and associated sediment and debris, into transportation drainage features, such as roadside ditches, culvert inlets, and roadway dips. These drainage features become vulnerable to failure when impacted by significant runoff events, allowing uncontrolled water to divert and damage forest service road and trail prisms. The transportation systems in the burned area include roads with significant road improvement investments which can be compromised, along with threats to loss of access along road and trail segments.

Stream/road interaction points (large culvert crossings) with significantly impacted drainages above are likewise susceptible to these increased flows and debris plugging. Overtopping in these locations would be more extreme, with sudden failures of the road prism and mass wasting whether the crossing is on a slope or in a floodplain. Even in scenarios where the prism fill does not collapse, excessive erosion and damage to the prism will occur around the inlet of the culvert and on the fill slope across the road. Structure loss may or may not occur in both these situations.

Natural Resources

Native Plant Communities

Native plant communities on NFS lands where invasive species or noxious weeds are absent or present in only minor amounts are a BAER critical value. Such areas are present in the Natchez fire area which mainly burned in designated Wilderness and Inventoried Roadless Areas. The fire area is characterized by complex geology, dramatic elevational changes, and plenty of rainfall which create ideal conditions for high endemism and species diversity.

While there are no documented occurrences of federally threatened or endangered botanical species in the Natchez fire area, there are numerous rare species that occur within and adjacent to the fire perimeter including Alaska yellow cedar, clustered lady slipper orchid, Klamath mountain buckwheat, Howell's lousewort, Pacific fuzzwort, red larkspur, wayside aster, California globe mallow, quill-leaf lewisia, redwood lily, strawberry saxifrage, and common jewel flower to name a few. The primary threat to these communities is invasion by non-native invasive plants that readily colonize burned areas and can substantially damage these critical natural resource values. Non-native invasive plants interfere with recovery by displacing native plant communities subsequently impacting the ecological stability of the system.

Currently, the fire area has less than 7 acres of known noxious weed infestations, however access roads and both fire camps were heavily infested and provide a direct seed source for transport into the fire area. Finding noxious weed species through early detection surveys and implementing treatments to prevent widespread occurrence throughout the burned area will be essential the first year following the Natchez fire to prevent long term or irreversible damage to this critical natural resource. Early detection and rapid response are key principles in preventing noxious weed infestations from becoming unmanageable and are the primary strategy prescribed during BAER assessments.

Southern Oregon/Northern California Coho Salmon; ESA listing status Threatened

On the Klamath National Forest, Indian Creek and West Fork Indian Creek are Coho critical habitat with documented occurrences. Within the Indian Creek watershed, Upper South Fork Indian Creek, Cole Creek, and Twin Valley Creek had the highest percentage of moderate and high soil burn severity. These streams have an elevated risk for debris flow which can have detrimental impacts to salmon spawning habitat, at least in the short term. These drainages will likely see a spike in turbidity and bedload associated with sediment runoff within these burned watersheds.

Anticipated fire effects on the Rogue River-Siskiyou National Forest fish species and habitat are moderate. Coho salmon critical habitat is located in Poker Creek and Dunn Creek within the burned area. Small portions of these watershed have burned, so the overall impacts to salmon habitat will be limited. These drainages will likely see a localized spike in turbidity and bedload associated with sediment runoff within these burned watersheds.

Cultural and Heritage Resources (Pre-Contact and Historic)

Three sites are known to be within the fire area; cabin flats and historic refuse, a lithic scatter, and a site with historic refuse. Of these three sites, the only one that is of concern for District archaeology staff and the Karuk Tribal Liason is the lithic scatter. The District staff and Karuk tribe will work together to monitor and protect the site.

Other non-BAER values

No non-BAER critical values were identified during this BAER assessment.

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 mitigate unacceptable risk of degradation to natural and cultural resources. The Natchez BAER team has recommended treatments that address the emergencies presented in the post-fire environment with the most effective, minimum treatment. The application of these BAER treatments are expected to minimize the risk of on-site and downstream damages to the identified critical values. Below, the objectives are the proposed treatments are included.

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 .

Proposed Road and Trail Treatments

The objective of the road and trail treatments are to:

1. Protect road and trail investments from becoming impassible and damaged due to increased post-fire runoff.
2. Reduce sedimentation into streams degrading water quality and endangered species habitat (Coho salmon).
3. Improve road drainage by increasing ditch and catchment basin capacity to reduce the potential for road failure due to increased flows

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.
2. Coordinate with other Federal, state, and county agencies on posting of hazard warning signs
3. Protect worker and public safety by removing hazard trees at trailheads and within the vicinity of road and trail work.

Proposed Channel Treatments:

There are no proposed channel treatments.

Cultural and Heritage Resources:

There are no cultural and heritage treatments.

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

Land NA (weeds only) % Channel NA % Roads/Trails 80 - 100 % Protection/Safety 90 - 100 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	50-90%	50-90%	50-90%
Channel	N/A	N/A	N/A
Roads/Trails	80-100%	80-100%	80-100%
Protection/Safety	90-100%	90-100%	90-100%
Cultural Resource Protection	N/A	N/A	N/A

E. Cost of No-Action (Including Loss): 147,205

Human Life and Safety – Without signs describing hazards present in the burned area, a forest user could be unaware of risks and proceed without further consideration for their safety. Exposure to falling rocks, hazard trees, route loss and flooding are among the threats identified. The significance of protecting human life and safety is assumed self-evident and not included in the calculations used below to justify treatments.

Property – Certain road segments have been identified as being susceptible to damage by post-fire peak flows and increased runoff. A method called the Implied Minimum Value (IMV) is recommended by BAER leadership to determine the cost-benefit ratio for values at risk where market value is not available Calkin et. al., (USDA 2007). An IMV is assigned to the Property Values at Risk which equals \$104,825.

IMPLIED MINIMUM VALUE
Estim. cost of treatments: \$ 64,395
Estim. Probability of Damage or Loss w/o Treatment: 80%
Estim. Probability of Loss if Treated: 20%
IMV = Treatment Cost/(Probability Loss Untreated - Loss Treated)
Implied Minimum Value (IMV) for Property $\$62,895/(0.8-0.2) = \$107,325$

Natural Resources – Without treatments to minimize post-fire effects from the spread of known populations of invasive plant species, there is a risk of diminishing native vegetation and ecosystem diversity in wilderness

and the areas. Using the IMV method, the value of the native plant communities in threatened areas is \$39,880.

IMPLIED MINIMUM VALUE
Estim. cost of treatments: \$ 23,928
Estim. Probability of Damage or Loss w/o Treatment: 80%
Estim. Probability of Loss if Treated: 20%
IMV = Treatment Cost/(Probability Loss Untreated - Loss Treated)
Implied Minimum Value (IMV) for Property \$23,928/(0.8-0.2) = \$39,880

F. Cost of Selected Alternative (Including Loss): \$91,781

G. Skills Represented on Burned-Area Survey Team:

- | | | | |
|-----------------|--------------|--------------------|---------------------------|
| [X] Hydrology | [X] Soils | [X] Geology | [X] Trails and Recreation |
| [] Forestry | [] Wildlife | [] Fire Mgmt. | [X] Engineering |
| [] Contracting | [] Ecology | [X] Botany | [X] Archaeology |
| [] Fisheries | [] Research | [] Landscape Arch | [X] GIS |

Team Leaders: Joe Blanchard

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Team Members:

Joe Blanchard – Soil Scientist
Robert Lee – Engineer
Mark Sommer – Hydrologist
Sam Commarto – Trails and Recreation
Erin Lonergan – Botany and Weeds
Zach Rodriguez – Archaeology
Derek Beal – Geology
Nathan Foster – GIS

H. Treatment Narrative:

Land Treatments

L-1 – Noxious Weed Detection Surveys

Treatments to mitigate the noxious weed emergency include initial detection surveys and concurrent treatment (hand-pulling) of any small noxious weed populations located during surveys. Detection surveys will be conducted along completed fire lines, trails, and roadside areas disturbed by suppression actions where invasion by noxious weeds is most probable. Surveys will focus on un-infested, burned ground, and bare areas created by suppression activities. Surveys conducted in areas already infested with weeds will concentrate on detecting spread from these populations and preventing establishment in Wilderness and Special Interest Areas. Surveys will be conducted in 2019 during seasonally appropriate times for detection of target noxious weed/invasive plant species.

All newly discovered noxious weed populations will be mapped and entered into the National Resource Inventory System (NRIS) according to National protocol. Treatment will be recorded as directed by the same National protocols. Noxious weed treatment will consist of hand pulling to root depth and if seed is present, plants will be bagged and properly disposed.

Weed Assessment Area	Survey Treatment Needs			Cost			
	Roads (miles)	Fire Line (miles)	Trails (miles)	Labor	Mileage	Project Admin	Total
RRSNF- Burn Area	9	2	0	\$2,750	\$102	\$1,800	\$4,652
RRSNF - Contingency Areas Disturbed by Suppression	16.5	8.5	0	\$4,850	\$102	\$1,800	\$6,752
KNF - Burn Area	4.6	15.75	2.5	\$5,960	\$102	\$1,200	\$7,262
KNF - Contingency Area Disturbed by Suppression	6.4	8.25	0	\$3,000	\$102	\$1,200	\$4,302
				\$16,560	\$408	\$6,000	\$22,968

L-2 – Port Orford Cedar Root Rot Detection Surveys

Sutcliffe Creek SIA has a high risk for invasion by *P. lateralis* based on its relation to roads, firelines and waterways and should be surveyed for the presence of this pathogen. Detection surveys would include soil and water bait traps that involve anchoring seedlings near waterways and placing foliage in streams. Effective detection surveys for this pathogen usually require multiple years in order to ensure the disease is at detectable levels. BAER funds are being requested to help with first year implementation costs of detection surveys, including the procurement of seedlings and installation of bait traps. Botany Program dollars will be used to support this work in subsequent years including the continued monitoring of traps as well as PCR genetic screening tests for the presence of the pathogen. If the disease is discovered in previously uninfected areas, administrative closures can be used until a long-term solution such as sanitation or planting of resistant varieties can be implemented. If the disease is discovered in previously uninfected areas, location data will be shared with Forest Health Protection and National data recording protocols will be followed.

Labor estimates for Port Orford Root Rot Surveys- KNF			
Personnel	Cost	Days	Total
One GS-11	\$320	3	\$960

Trail Treatments

T-01 – Erosion control to protect trail tread

The Kelly Lake trail (5233) is a high use trail that connects a trailhead and parking area with the popular Kelly Lake recreation area. Kelly Lake is the venue for an annual fishing derby event that is frequented by an estimated 75-100 people from the local community.

Areas adjacent to the Kelly Lake trail burned at moderate soil severity, resulting in ~100% consumption of organic material that stabilized and supported the trail tread and prism. Burned stumps and roots have undermined the trail tread in 11 locations, which will need to be backfilled with local rock in order to prevent further loss of the tread during winter storm events and mitigate potentially hazardous conditions for hikers and

equestrians. Portions of the trail alignment are in short run draws where increased water flow and lack of duff layer will result in additional loss of trail tread without constructing check and/or drain structures as needed.

Trail Erosion Control Treatments- KNF				
Position	Daily Rate	Quantity	Days	Total
GS-7 Trail Supervisor	\$307	1	10	\$3,070
GS-6 Crew Member	\$153	1	10	\$1,530
AD Laborer	\$183.20	5	10	\$9,160
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	Miles	Rate	Days	Total
Vehicle Mileage	100	\$0.8	6	\$480
Per Diem/Meals		\$32.5	70	\$2,275
			Grand Total	\$16,515

Interim Request Update:

Clear Creek National Recreation Trail (5223)
 Rattlesnake Meadows Trail (5230)
 Raspberry Lake Trail (5231)

Total Miles in Burned Area: 4.86m
 High SBS 1.25m
 Moderate SBS 1.60m

Managed use: Hiker, Pack and Saddle (Equestrian)

The Natchez Fire crossed into the Clear Creek drainage on 9/25, just days after the BAER team finished their on the ground assessments. The area burned impacted almost 5 additional miles of FS System Trails, including portions of the Clear Creek National Recreation Trail, Rattlesnake Meadows Trail, and Raspberry Lake Trail.

Trails are typically impacted by wildfire in a few ways: roots and stumps burn out from under the trail, creating cavities that undermine the tread; higher than normal amounts of runoff from upslope hydrophobic soils can cause washouts across trail tread; and burned trees adjacent to the trail can pose imminent safety hazards to trail workers as well as the public, or fall and become obstacles/hazards to the public. Based on an assessment done to other trails in the Natchez fire footprint, we have put together a funding request to mitigate these types of hazards based on mileage, soil burn severity, and crew access to the area (requiring packstock).

Trail Erosion Control Treatments- KNF Interim #1				
Position	Daily Rate	Quantity	Days	Total
GS-7 Trail Supervisor	\$307	1	20	\$6,140.00
GS-6 Crew Member	\$153	1	20	\$3,060.00
AD Laborer	\$183.20	5	20	\$18,320.00
WG-5 Packer	\$205	1	5	\$1,025.00
<hr/>				
	Miles	Rate	Days	Total
Vehicle Mileage	100	\$0.8	8	\$640.00
Per Diem/Meals		\$32.5	145	\$4,712.50
			Grand Total	\$33,897.50

Roads Treatments

R-1 – Ditch and Culvert Cleaning

Ditch and culvert cleaning treatments are designed to prepare road systems within the burned area for elevated runoff that is anticipated to impact road drainage features and pose an elevated risk to the Forest Service property infrastructure. In the Natchez fire burned area, 3.5 miles of road were identified as needing treatment based on proximity (traveling through or down-slope of) moderate and high burned areas. Forest engineers critically identified road segments that are at a high risk for damage to road drainage features within moderate and high severity areas. Treatments consist of a variety of drainage maintenance including:

1. Culvert Cleaning – Culvert cleaning includes the cleanout of catchment basins, inlets and outlets. The cleanout of catchment-basins below the inlet of the culvert is done to capture the sediment transported from the channel or ditch. Capturing the sediment will help in preventing the culvert inlet from being partially plugged or completely buried. Culvert outlet cleanout is done to remove any material that would impede the flow of water through the outlet of the culvert.
2. Ditch Cleaning – The cleanout of drainage ditches is required to remove any debris that may deflect the flow out of the ditch and also to ensure the flow reaches the outflow structure.

Implementation Plan Summary

Ditch and culvert cleaning treatments in the Natchez Fire have been prioritized for major arterial road prisms being treated first for anticipated increases in peak flows. The highest priority on the Klamath side of the fire includes 18N30, 18N33, 17N32, and 17N28 and on the Rogue River- Siskiyou, FSRs 4808, 4808-012, and 4904-060 are the highest priority.

Klamath National Forest – Ditch and Culvert Cleaning

Treatment	Units	Unit Cost	# of Units	Total Cost
Ditch and Culvert Cleaning	Miles	\$5,800	2.3	\$13,340

Rogue River – Siskiyou National Forest – Ditch and Culvert Cleaning

Treatment	Units	Unit Cost	# of Units	Total Cost
Ditch and Culvert Cleaning	Miles	\$5,800	1.2	\$6,960

R-2 – Storm Inspection and Response

The Natchez Fire has impacted several watersheds with areas of moderate and high soil burn severity. Post-fire peak flow and debris flow modeling indicates that roads within these watersheds are at an increased risk of damage. If drainage structures become plugged by debris, they are likely to fail and can cause moderate to major impacts to the National Forest transportation system. Storm inspection and response would keep culvert and drainage structures functional by cleaning sediment and debris from drainage structures between and during large storm events.

Based on predicted storm events and historic trends, it is anticipated that 3 to 5 days are needed for storm inspection and response in the 2018-2019 post-fire seasons. Work will include Forest Service personnel inspection of transportation systems and identification of problems, and then response treatment to correct the damages to road drainage features, including days for forestry technicians to log out roads where access may be obstructed by downed trees.

Implementation Plan Summary

Storm inspection and response treatments in the Natchez Fire have been prioritized for major arterial road prisms being treated first for anticipated increases in peak flows. The highest priority on the Klamath side of the fire includes 18N30, 18N33, 17N32, and 17N28 and on the Rogue River- Siskiyou, FSRs 4808, 4808-012, and 4808-060 are the highest priority.

Klamath National Forest – Storm Inspection and Response

Treatment	Units	Unit Cost	# of Units	Total Cost
Storm Inspection and Response	Each	\$6825	1	\$6,825
Equipment Mod	Each	\$500	1	\$500
Total Costs				\$7,325

Rogue River – Siskiyou National Forest – Storm Inspection and Response

Treatment	Units	Unit Cost	# of Units	Total Cost
Storm Inspection and Response	Each	\$6825	1	\$6,825
Equipment Mod	Each	\$500	1	\$500
Total Costs				\$7,325

R-3 – Culvert Removal

On the Rogue River- Siskiyou National Forest, one culvert is recommended for removal on the 4904-060 road. This culvert is undersized and the crossing partially failed during the winter of 2017-2018. Approximately 300 cubic yards of fill still remain in the crossing which is at risk of failing this winter. This crossing is less than 1/10th of a mile from Poker Creek, so the culvert failure would very likely deliver fine sediment to Coho critical habitat. The culvert is also less than 1/4 mile from the end of the road, so removing the crossing would have a limited impact on road access.

Implementation Plan Summary

This culvert removal is the highest priority work for BAER roads treatments. The culvert should be removed this fall, prior to the first damaging storm.

Rogue River – Siskiyou National Forest – Culvert Removal

Treatment	Units	Unit Cost	# of Units	Total Cost
Culvert removal	Each	\$3,600	1	\$3,600

R-4 – Armored Critical Dip

Two armored critical dips are recommended in the fire area. On the Klamath National Forest, an 18 inch culvert on the 17N32 is undersized for the post-fire increase in peak flows and has the potential to divert down the 17N32 road where a large landslide has recently occurred. The culvert at this crossing is also rusted out, so removal prior to the installation of the dip is recommended. Given the demonstrated instability of the area, treating this site to prevent flow from diverting down the road is high priority.

One armored critical dip is proposed on the Rogue River-Siskiyou. The crossing is less than 1/4 mile beyond the culvert removal treatment on the 4904-060 road. This 18 inch culvert is currently plugged and has the potential to divert flow down the road directly into Coho critical habitat in Poker Creek. Unplugging this culvert and

installing an armored dip above the crossing would prevent diversion potential and reduce the need for maintenance.

Implementation Plan Summary

Installation of these critical dips are among the highest priority work on proposed. These treatments are anticipated to be implemented this fall, prior to the first major storm events.

Klamath National Forest – Armored Critical Dip

Treatment	Units	Unit Cost	# of Units	Total Cost
Armored Critical Dip + Culvert removal	Each	\$5,000	1	\$ 5,000

Rogue River – Siskiyou National Forest – Armored Critical Dip

Treatment	Units	Unit Cost	# of Units	Total Cost
Armored Critical Dip	Each	\$3,300	1	\$ 3,300

R-5 – Log and Debris Removal on West Fork Indian Creek Bridge FS Rd 17N32

Logs and debris have racked up on the bridge surface and footings as a result of previous high flow events. These logs and debris are reducing the capacity of the bridge to pass flood flows and additional woody material that is expected to mobilize during storm events in the winter of 2018/2019. Removal and placement of the logs and debris away from the bridge are recommended before the first damaging storm event. Follow up maintenance may be needed and is included in the storm patrol and response treatment.

Implementation Plan Summary

Removal of logs and debris can be accomplished with an excavator at the same time as the proposed armored dip treatment. These treatments are anticipated to be implemented this fall, prior to the first major storm events.

Klamath National Forest – Log and Debris Removal on Bridge

Treatment	Units	Unit Cost	# of Units	Total Cost
Log and Debris Removal	Each	\$1,230	1	\$ 1,230

Protection/Safety Treatments:

P-1 – Road Hazard Signs: Signs will inform users of the dangers associated with entering and recreating within the burned area.

Road Warning Signs will be located at critical portals when entering the fire area. Road warning sign locations are located on the BAER treatment map (Appendix A).

Klamath National Forest – Road Hazard Signs

Treatment	Units	Unit Cost	# of Units	Total Cost
Installation of warning sign 30x48	Sign/Post	\$302.5	8	\$2,420

Rogue River - Siskiyou National Forest – Road Hazard Signs

Treatment	Units	Unit Cost	# of Units	Total Cost
Installation of warning sign 30x48	Sign/Post	\$346	3	\$1,038

P-2 –Trail Hazard Signs:

The overall purpose of this treatment is to reduce risks to human life and safety by warning Forest visitors of existing threats while traveling within or adjacent to burned areas on National Forest System trails.

"Entering Burned Area" signs are needed to alert the public of possible threats to their life and safety that exist within the burned areas. The signs contain language specifying items to be aware of when entering burned areas such as falling trees, and rolling rocks.

Treatment	Units	Unit Cost	# of Units	Total Cost
Recreation Warning Signs	Sign/Post	Supplied by Forest	4	\$0

P-3 –Road Closures

It is recommended that roads that are interior to the burned area that have not been treated for hazard trees during fire suppression be closed to public access to mitigate the threat to life and safety. Engineering staff of the BAER team has provided a list of roads recommended for closure due to hazard trees. All are level 1 Forest roads that are currently closed to public use, so no further BAER closures are necessary.

I. Monitoring Narrative: None requested

Part VI –

Klamath National Forest
Emergency Stabilization Treatments and Source of Funds

Interim Request #1

Line Items	Units	Cost	NFS Lands		Other \$
			# of Units	BAER \$	
A. Land Treatments					
L-1 EDRR Burn Area	lump sum	\$7,262	1	\$7,262	\$0
L-1 EDRR Contingency	lump sum	\$4,302	1	\$4,302	\$0
L-2 POC Root Rot Survey	lump sum	\$960	1	\$960	\$0
<i>Subtotal Land Treatments</i>				\$12,524	\$0
B. Channel Treatments					
None Proposed				\$0	\$0
<i>Subtotal Channel Treat.</i>				\$0	\$0
C. Road and Trails					
T-1 Trail Storm Proofing	lump sum	\$16,515	1	\$16,515	\$0
T-1 Trail Storm Proofing	lump sum	\$33,898	1	\$33,898	\$0
R-1 Ditch and Culvert Cleaning	miles	\$5,800	2.3	\$13,340	\$0
R-2 Storm Inspection and Response	lump sum	\$7,325	1	\$7,325	\$0
R-4 Armored Dip	each	\$5,000	1	\$5,000	\$0
R-5 Bridge Debris Removal	each	\$1,230	1	\$1,230	\$0
<i>Subtotal Road & Trails</i>				\$43,410	\$0
					\$0
D. Protection/Safety					
P-1 Road Warning Signs	each	\$303	8	\$2,420	\$0
P-2 Recreation Warning Signs	each	\$0	4	\$0	\$0
P-3 Temporary Closures	lump sum	\$0	1	\$0	\$0
<i>Subtotal Protection and Safety</i>				\$2,420	\$0
E. BAER Evaluation					
		\$10,000	1	---	\$10,000

<i>Subtotal Evaluation</i>				\$0	\$0
F. Monitoring					
M-1 Cultural Resource Proection Monitoring					
None Proposed					
<i>Subtotal Monitoring</i>				\$0	
G. Totals					
Previously approved				\$58,354	
Total for this request				\$33,898	

PART VII - APPROVALS

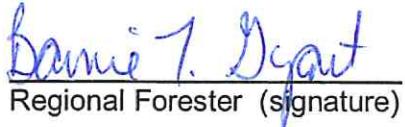
1.



Dale A. Smith
Forest Supervisor (signature)

11/15/18
Date

2.



Jamie T. Dugay
Regional Forester (signature)

11/28/18
Date

