**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

[X] 3. No Treatment Recommendation

B. Type of Action

[] 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)

[ ] 2. Interim Report (###)

[ ] Updating the initial funding request based on more accurate site data or design analysis

[ ] Status of accomplishments to date

[ ] 3. Final Report (following completion of work)

**PART II - BURNED-AREA DESCRIPTION**

A. Fire Name: Lochsa South Complex B. Fire Number: ID-NCF-000877

C. State: Idaho D. County: Idaho

E. Region: 01 - Northern F. Forest: Nez Perce and Clearwater

G. District: Moose Cr/Lochsa/Powell H. Fire Incident Job Code: P1J1TQ -0117

I. Date Fire Started: August 15, 2015 J. Date Fire Contained: Not Contained

K. Suppression Cost: $35,000.00

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles):

2. Fireline seeded (miles):

3. Other (identify):

M. Watershed Number:

|  |  |  | **Burn Severity** |  |  |
| --- | --- | --- | --- | --- | --- |
| **HUC6** | **HUC name** | **Unburned Acres in the Fire Perimeter** | **Low** | **Moderate** | **High** | **Total Acres in the Fire Perimeter** |
| **170603020106** | West Moose Creek | 47.2 | 6.7 | 3.0 | 1.5 | 58.4 |
| **170603020108** | Rhoda Creek | 433.6 | 308.1 | 448.2 | 229.8 | 1419.7 |
| **170603020203** | Three Links Creek | 2.0 | 0.4 | 0.1 |  | 2.5 |
| **170603020401** | Gedney Creek | 163.4 | 166.9 | 127.3 | 6.4 | 464.0 |
| **170603020403** | Rackliff Creek-Selway River | 29.7 | 22.4 | 6.5 |  | 58.6 |
| **170603030502** | Lake Creek | 1070.3 | 1398.3 | 1896.9 | 395.1 | 4760.5 |
| **170603030504** | Stanley Creek-Lochsa River | 211.5 | 187.7 | 139.6 | 64.3 | 603.0 |
| **170603030505** | Boulder Creek | 344.0 | 492.3 | 44.0 | 0.9 | 881.2 |
| **170603030506** | Bald Mountain Creek-Lochsa River | 10.4 | 24.7 | 2.4 | 0.0 | 37.5 |
| **170603030701** | Old Man Creek | 141.0 | 320.7 | 230.9 | 5.6 | 698.2 |
| **170603030702** | Split Creek | 9.1 | 3.2 | 1.0 |  | 13.2 |
| **170603030703** | Fire Creek | 192.4 | 308.5 | 253.3 | 19.3 | 773.5 |
| **170603030704** | Bimerick Creek-Lochsa River | 11.0 | 30.4 | 1.9 |  | 43.2 |

N. Total Acres Burned: NFS – 9,075

O. Vegetation Types: The habitat type groups found in the fire is dominated by groups 7 and 8. Habitat type group 7 (Cool and Moist subalpine fir) is characterized by stands of subalpine fir, Engelmann spruce, and lodgepole pine, with brush understories. Western larch, whitebark pine, and Douglas-fir are less common components. These types are characterized by cool and moist site conditions. Fire intervals are estimated at greater than 120 years for most sites (Fischer, 1987). Habitat type group 8 (Cool and Wet subalpine fir) is characterized by stands of subalpine fir, Engelmann spruce, and lodgepole pine, with shrub, forb or graminoid understories. These habitat types are uncommon and occur at upper elevations in riparian areas (Green et al, 1992). These are forested riparian areas along streams and associated with wetlands. Due to this very wet condition the fire free interval can be very long. Intervals between severe, stand replacement fires are probably much longer than the majority of fire group nine, 90-130 years and are probably in excess of 150 years.

P. Dominant Soils: Soils in the Lochsa South Complex fires area are derived from granitic Batholith parent material which is predominantly coarse textured, containing high amounts of rock fragments. Soil surfaces are generally very cobbley, ashy silt loams. The thin volcanic ash mantle is derived from the Mount Mazama deposition approximately 7,000 years ago.

Q. Geologic Types: Geology is comprised of three primary geologic components. The largest is 64 percent of the area which is rhyolite breccia from the Eocene period, followed by 33 percent of granite also from the Eocene. The smallest extent is alluvium sediments from the Quaternary with three percent of the area.

R. Miles of Stream Channels by Order or Class:

 Perennial: 36 Intermittent: none (per NHD)

S. Transportation System (miles)

 Roads: 0 Trails: 10 miles

**PART III - WATERSHED CONDITION**

A. Burn Severity (acres):

|  |
| --- |
| **Soil Burn Severity (SBS) - Acres** |
| **Ownership** | **High** | **Moderate** | **Low** | **Very Low/Unburned** | **Total** |
| NFS | 607 | 2,929 | 3,112 | 2,425 | 9,075 |

|  |
| --- |
| **Soil Burn Severity (SBS) - Percent** |
| **Ownership** | **High** | **Moderate** | **Low** | **Very Low/Unburned** |
| NFS | 7 | 32 | 34 | 27 |

B. Water-Repellent Soil (acres): 3,536 acres

(This number is a total of the moderate and high burn severity. At the time of data collection, soils across the Lochsa South Complex fires area where experiencing naturally occurring water-repellency. This condition exists in unburned areas of the fire as well as through all burn severity classes. The moderate and high soil burn severity areas are likely to experience fire induced water-repellency.)

C. Soil Erosion Hazard Rating (acres):

 1,164 – low 357 – moderate 1,693 - high 7,644 - unmapped

D. Erosion Potential: 0.1 tons/acre

(Estimate is a weighted average for all soils, based on the next 24 month time period without treatment as a function of changes expected due to soil burn severity.)

E. Sediment Potential: 60 cubic yards/square mile

**PART IV - HYDROLOGIC DESIGN FACTORS**

A. Estimated Vegetative Recovery Period (years): 1-3 grass, 5-10 shrubs, 10-50 conifers

B. Design Chance of Success (percent): 90

C. Equivalent Design Recurrence Interval (years): 25 year post-fire

D. Design Storm Duration (hours): 6 hr and 1 hr

E. Design Storm Magnitude (inches): 0.9 (6 hour); 0.7 (1 hour)

F. Design Flow (cubic feet / second/ square mile): variable by drainage area

G. Estimated Reduction in Infiltration (percent): 0-80% depending on burn severity

H. Adjusted Design Flow (cfs per square mile): variable by drainage area

**PART V - SUMMARY OF ANALYSIS**

Background: The Lochsa South Complex wildland fires were reported as lightning-caused ignitions from July through August, 2015. The fire area is located in the Selway Bitterroot Wilderness on the Moose Creek and Lochsa/Powell Ranger Districts. The fires burned 9,075 acres of NFS lands; roughly 65% of the fire burned at moderate and low severity, with about 7% burning at high severity.

The diverse coniferous forest and understory vegetation is supported by the high amounts of precipitation, ranging from 30” – 40” annually. Records of large and intense wildland fires beginning in 1910 have occurred 5 to 6 different times since. The hot, intense fires removed protective vegetation from the soils and exposed them to erosion. Many burned and eroded areas converted to persistent shrublands and have not yet reforested, largely because of the fire-damaged soils. The combination of loose soils, steep slopes, and rain-on-snow precipitation events produce landslides that dissect the steep valleys and periodically deliver sediment to its streams.

The major streams in the burned area currently support runs of ESA-listed Snake River summer steelhead, spring/summer Chinook salmon (Region 1 sensitive species), ESA-listed Columbia River bull trout, Pacific lamprey, westslope cutthroat trout (Region 1 sensitive species), rainbow trout, mountain whitefish, as well as dace, sculpin and suckers.

Historically, increased sediment delivery and associated stream habitat alterations caused by high spring runoff events after wildfire may have reduced fish densities or eliminated subpopulations in smaller drainages. Current conditions suggest these effects were short-term as fish species recolonized affected areas over time. Overall, landscape elements in this area provided habitat conditions that allowed fish populations to be resilient and adapt to major natural perturbations (i.e., wildfires and floods).

The BAER team subsequently evaluated the identified values in context of the preceding characterization with field data and subsequent analysis to determine the critical values that may be treated under the BAER program (FSM 2523.1 – Exhibit 01). The characterization of the threats to these critical values also incorporated post-fire flood source area response of nearby watersheds following previous fires, most recently the Johnson Bar BAER Assessment (2014). The risks associated with these critical values were assessed by the BAER team using FSM 2523.1 – Exhibit 02. The narratives for the BAER Critical Values having unacceptable risk that warrant emergency response actions are followed by numbers that represent the response action(s) recommended for managing unacceptable risk.

A. Describe Critical Values/Resources and Threats (narrative):

(This information is organized to incorporate “Critical Values and Risk Assessment” from WO ID 2520-2014-1, effective December 17, 2014)

**1. Human Life and Safety:** Potential threats to visitors/recreating public and agency personnel include flooding and debris flows, hazard trees, and rockfall along trails and at trailheads, developed recreation sites, and dispersed areas that are within or downstream/downslope of areas that burned at moderate or high severity.

**High Risk** (possible, major) to human life and safety of recreating public and agency personnel from hazard trees when hiking the 9 trails (2 miles) within the burn areas. Travel on fire-damaged trail segments when inclement weather is expected increases the probability of loss or injury along 2 miles of trail segments located within or downslope of moderate and high soil burn severity areas from hazard trees, flooding from accelerated overland flow, or rock/debris fall. No treatments were recommended for human life and safety.

**2. Property:**

**High Risk** (likely, moderate) to 2 miles of trails due to expected increased overland flow with accelerated hillslope erosion, increased stream flows with subsequent sediment and debris delivery to trail tread and drainage structures. Trails may become impassible to hikers and in severe cases may be completely washed out due to fill slope failure. Should drainage structures fail there could be delivery of large quantities of fill material downslope to adjacent streams that support Designated Critical Habitat (DCH) for bull trout and Snake River summer steelhead DCH. All of these trails are part of the Selway Bitterroot Wilderness trail system. The Bitterroot Mountains form a rugged, glacier-carved border between Idaho and Montana. On both sides of this border is the Selway-Bitterroot Wilderness, the third largest Wilderness in the Lower 48. These trails are part of the multi-loop system found within the wilderness area. No treatments were recommended for trails.

**3. Natural Resources:**

**Low Risk** (very likely, minor) to soil productivity from post-fire increases in erosion is expected in localized areas that sustained moderate to high burn severities. For consistency with the BAER risk assessment matrix, five to eight years is the estimated length of time for recovery of effective ground cover and above ground organic matter in areas that burned at moderate to high severity. Over the long term, the loss of surface soils can lead to deceased site productivity with the potential to increase the spread of invasive plant species, since noxious weeds are able to more readily establish on degraded sites. It should be noted many soils throughout burned area have high content coarse fragment surface cover that will aid in reducing erosion along with abundant partially burned down wood in many areas that will reduce slope lengths and decrease the potential for sheet and rill erosion. Beargrass (Xerophyllum tenax) is abundant in many of the burned areas and acting as a stabilizing influence. Re-sprouting of bear grass and other vegetation was already occurring when the BAER team conducted field assessments. No treatments were recommended for soil productivity.

**Low Risk** (likely, minor) to water quality from the threat of increased sediment. There is potential for increased sediment originating from moderate and high burn severity areas during and immediately after storm events to impact water quality in streams with designated critical habitat and suitable occupied habitat for federally listed threatened or endangered aquatic species. Overall, these are expected to be short-term effects that will persist for the next three to five years. An emergency does not exist.

**Low Risk** (likely, minor) for impairment of hydrologic function. Threats to hydrologic function on NFS lands within the burned areas exist on areas of moderate and high soil burn severity. The presence of hydrophobic soils, loss of canopy cover, loss of ground cover, and loss of channel stabilizing riparian vegetation all have the potential to contribute to altered hydrologic function and watershed response to precipitation events within burned watersheds. This is expected to be a short-term effect. An emergency does not exist.

**High Risk** (likely, moderate) to native plant diversity, intact native plant communities or naturalized communities due to the threat of introduction and spread of noxious and non-native invasive plants from known populations that exist within and adjacent to areas of high and moderate burn severity. Trails/trailheads and disturbances from fire suppression operations within and adjacent to the Lochsa South Complex fires are primary sources and corridors for weed dispersal. The adjacent warm/dry habitats that burned at low to high severity are moderately to highly susceptible to new weed invasion. Most of the previously identified weed infested sites within the fire were either burned or occur adjacent to burned areas. The susceptible habitats contain known infestations of Spotted knapweed and Canada thistle. Spotted knapweed and Canada thistle are invasive weeds that can readily out-compete native plants and dominate disturbed sites. No treatments were recommended for native plant diversity.

**High Risk** (likely, moderate) to designated critical habitat or suitable occupied habitat for ESA-listed aquatic species (Snake River summer steelhead and Columbia River bull trout). Known fish-bearing streams within or near the fire perimeter. With the high proportion of moderate (32%) and high (7%) burn severity, the expected post-fire watershed responses include increased overland flows with accelerated surface erosion and subsequent delivery of sediment and debris to stream channels. There is heightened probability for increased erosion and overland flow with mass wasting and sediment delivery to major streams and several tributaries. The primary concern is these impacts increase the potential for multiple failure areas along forest trails, with direct and indirect impacts to DCH for the ESA-listed fish species. These threats are expected to alter habitat and channel conditions in the short term; with potential longer term impacts to salmonid productivity over the long term. (Treatments TT-01)

**4. Cultural and Heritage Resources:**

**Very Low to Intermediate Risk** for cultural site/properties assessed as part of the BAER assessment for the Lochsa South Complex fires. No treatments or associated funding is being requested for any cultural and heritage sites.

B. Emergency Treatment Objectives:

* Mitigate and protect, to the extent possible, threats to personal injury or human life of forest visitors and Forest Service employees by raising awareness through posting hazard warning signs on trails and recreation facilities to communicate hazards of burned trees, flooding, debris flows, and rock fall, and by repair and maintenance of roads and recreation facilities where there are threats to human life and safety. Communicate risks to cooperating agencies, local communities, and user groups. Consider temporary closures of NFS lands and recreation facilities to protect life & safety of visitors.
* Protect or minimize damage to NFS investments in trails by installing drainage features capable of withstanding potential increased overland and/or debris flows. Minimize damage to key NFS travel routes. If necessary, implement temporary wet-season administrative closures to ensure effectiveness of implemented BAER treatments and to protect the investment cost of those treatments.
* Protect or mitigate potential post-fire impacts to water quality, critical habitat or suitable occupied habitat for ESA-listed aquatic species, and cultural resources within the burned area. When implementing authorized BAER response actions ensure compliance with conservation recommendations provided by tribes and cooperating agencies.
* Assist Native American tribes, local, State, and Federal agencies and other cooperators with the interpretation of the assessment findings and potential post-fire impacts to important cultural resources, water quality, and aquatic habitats.

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

 Land - 80% Channel - NA Roads/Trails - 80% Protection/Safety - 90%

D. Probability of Treatment Success

|  |  |
| --- | --- |
| **Treatment** | **Years after Treatment** |
| **1** | **3** | **5** |
| Land | 80 | 75 | - |
|  |  |  |  |
| Channel | NA | NA | NA |
|  |  |  |  |
| Roads/Trails | 80 | 90 | 100 |
|  |  |  |  |
| Protection/Safety | 80 | 70 | 60 |
| Initially, visitors will heed the warning signs. Public complacency is expected after the initial year unless there is a damaging event. |

E. Cost of No-Action (Including Loss): $0

F. Cost of Selected Alternative (Including Loss): $0

The cost of no-action is based entirely on replacement/reconstruction from damage or loss of specific trail segments within the burned area. Non-market values associated with the loss of trail segments include potential harm or injury to human life and indirect impacts to water quality and designated critical habitat (DCH) for ESA-listed fish species.

Overall, implementation of all recommended response actions is marginally justified. Combining estimated costs for all treatments for this analysis, then comparing the requested funding only to the no action loss or damage to trails confuses the benefit: cost calculations. The justification ratio would be higher if comparing loss or damage to trails to the requested trails treatment funds. The benefit: cost for treatments that address non-market values would default to “justified”.

G. Skills Represented on Burned-Area Survey Team:

 [X] Hydrology [X] Soils [ ] Geology [ ] Range [X] Recreation

 [ ] Forestry [ ] Wildlife [ ] Fire Mgmt. [ ] Engineering [ ]

 [ ] Contracting [ ] Ecology [X] Botany [X] Archaeology [ ]

 [X] Fisheries [ ] Research [ ] GIS [ ] Landscape Arch

**Team Leader: Cara Farr, Nez Perce-Clearwater NF, Region 1**

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Team Members:

Steve Armstrong – Assistant Forest Archeologist, Nez Perce-Clearwater NF, Region 1

John Warofka – Botanist, Nez Perce-Clearwater NF, Region 1

Cara Farr – Soil Scientist, Nez Perce-Clearwater NF, Region 1

Allison Johnson – Fisheries Biologist, Nez Perce-Clearwater NF, Region 1

Jim Gries – Soil Scientist, Chippewa NF, Region 9

Dave Callery – Hydrologist, Helena-Lewis & Clark NF, Region 1

H. Treatment Narrative:

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments:

None recommended.

Channel Treatments:

None recommended.

Road and Trail Treatments:

None recommended.

Protection/Safety Treatments:

None recommended.

I. Monitoring Narrative:

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

**Part VI – Emergency Stabilization Treatments and Source of Funds**

**Lochsa South Complex fires – Nez Perce-Clearwater N.F.**

 Interim #\_\_



**PART VII - APPROVALS**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. |  |  |  |

 Forest Supervisor (signature) Date

|  |  |  |  |
| --- | --- | --- | --- |
| 2. |  |  |  |

 Regional Forester (signature) Date