Post-Fire BAER Assessment

# Burned Area Emergency Response (BAER) Information Brief

CentralWashingtonFireRecovery.info

## Crescent Mountain Fire – Values at Risk Matrix and Treatments

November 2018

## EMERGENCY DETERMINATION

The BAER team began assessing the area for post-fire emergencies in September and October of 2018. In that time the team has identified the following values at risk to post-fire threats. Interim reports may be submitted as additional assessments are completed. The risk matrix below, Exhibit 2 of Interim Directive No.: 2520-2014-1 was used to evaluate the Risk Level for each value identified during Assessment.

| 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 on the following pages is a summary of the values within and adjacent to the Crescent Mountain Fire area, the threats to those values, the probability of damage or loss, magnitude of consequences and the resulting level of risk. In summary, the burned area includes an extensive and heavily used road and trail network, critical habitat for ESA-listed bull trout and chinook salmon and steelhead habitat, as well as sensitive plant communities.

| Critical Value | Threat to Value | Probability/Magnitude/Risk | Treatment | Notes |
|---|---|---|---|---|
| Roads intersecting fire boundary. | Potential of snags, felling of trees, or other unforeseen timing of hazards | Likely: Roads within moderate/high burn severity<br><br>Major concern for safety including potential travel delays<br><br>Very High | 14 Warning Signs | Signs will be placed at road and fire boundary intersections and at high risk flood and debris flow areas. |
| War Creek Trail 408 | Threat to life/safety of trail users from flooding, debris flows or unsafe trail conditions | Possible: Trail alignment in valley bottom<br><br>Major potential impact<br><br>High | Temporary Closure | |
| Roads End and Horse Camp Campgrounds | Flooding | Possible: flooding risk is associated with the main stem of the Twisp River<br><br>Major potential impact<br><br>High | Temporary closures | |
| Twisp River Trail-bridge over Eagle Creek | Bridge was burned in fire. Unsafe to use. | Possible:<br><br>Major potential impact<br><br>High | Bridge should remain closed until repaired or replaced | |
| All NFS Trails in burned area | Threat to life/safety of trail users from flooding, debris flows or unsafe trail conditions | Unlikely:<br>Major potential impact<br><br>Intermediate | Warning Signs | |
| FSR 4440 road prism (ML3, 3.901 miles in or below high/moderate burn area) | elevated runoff and dry ravel from moderate-high SBS burned hillslopes | Very Likely: increased flow and large woody debris in draws and culverts could erode roadway at point of flow<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>Very High | Storm Proof (3.721 miles) and Construct 5 Dips & 4 Armored Dips | Sole access to multiple trailheads (Twisp, Copper, Gilbert) and campgrounds (Roads End, Gilbert) |
| FSR 4430 road prism (ML3, 3.017 miles in or below high/moderate burn area) | elevated runoff and dry ravel from moderate-high SBS burned hillslopes | Very Likely: increased flow and large woody debris in draws and culverts could erode roadway at point of flow<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>Very High | Storm Proof (2.957 miles) and Construct 5 Armored Dips | Primary access to Williams and War Creek trailheads. Post burn predicted flow is extremely high (see Hydro report). |

| Critical Value | Threat to Value | Probability/Magnitude/Risk | Treatment | Notes |
|---|---|---|---|---|
| FSR 4435 road prism (ML3, 3.509 miles in or below high/moderate burn area) | elevated runoff and dry ravel from moderate-high SBS burned hillslopes | Likely: increased flow and large woody debris in draws and culverts could erode roadway at point of flow<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>Very High | Storm Proof (3.409 miles) and Construct 5 Armored Dips, Sediment Wedge Fill removal from bottomless arch inlet (50 CY) | Primary access to Twisp River Horse Camp and three trailheads. Post burn predicted flow is extremely high (see Hydro report). |
| FSR 4420 road prism (ML3, 1.702 miles in or below high/moderate burn area) | elevated runoff and dry ravel from moderate-high SBS burned hillslopes | Very Likely: increased flow and large woody debris in draws and culverts could erode roadway at point of flow<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>Very High | Storm Proof (1.682 miles), Construct 2 Armored dips, Remove Log jam at Outlet Eagle Creek Crossing | Access to Oval/Eagle Trailhead with multiple trails. |
| FSR 4440465 road prism (ML 3, 0.572 miles in moderate burn area) | elevated runoff and dry ravel from moderate-high SBS burned hillslopes | Very Likely: increased flow and large woody debris in draws and culverts could erode roadway at point of flow<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>Very High | Storm Proof (0.572 miles) | Primary access to road Ends CG and two Trailhead. |
| FSR 4435015 road prism (ML 3, 0.384 miles in moderate burn area) | Elevated runoff and dry ravel from moderate SBS burned hillslopes | Likely: increased flow and large woody debris in draws and culverts could erode roadway at point of flow<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>Very High | Storm Proof (0.384 miles) | Access to Reynolds Trailhead |
| Reynolds Creek Culvert | Potential scour in high flows and potential impact damage from mobilized debris. | Very Likely: increased flow and associated debris<br><br>Major: Loss of bridge investment<br><br>Very High | Monitor and Remove 50 CY of Sediment edge at inlet | Bridge not on 2019 inspection schedule, therefore inspection is required to monitor for scour and debris buildup. Further treatment may be required if monitoring warrants additional countermeasures |

| Critical Value | Threat to Value | Probability/Magnitude/Risk | Treatment | Notes |
|---|---|---|---|---|
| FSR 4430100 road prism (ML 3, 1.60 miles in moderate burn area) | elevated runoff and dry ravel from moderate SBS burned hillslopes | Very Likely: increased flow and large woody debris in draws and culverts could erode roadway at point of flow<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>Very High | Construct 2 Armored Dips (property protection) and gate road for closure per Soils Specialists recommendations (HLS) | Access to War Creek Trailhead with multiple trails. |
| FSR 4420080 road prism (ML 3, 0.971 miles in moderate burn area) | elevated runoff and dry ravel from moderate SBS burned hillslopes | Likely: increased flow and large woody debris in draws and culverts could erode roadway at point of flow<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>Very High | Storm Proof (0.971 miles) | Access to Oval/Eagle Trailhead with multiple trails. |
| FSR 4435080 road prism (ML 3, 0.514 miles below moderate burn area) | Elevated runoff and dry ravel from moderate SBS burned hillslopes | Possible: increased flow and associated debris<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>High | No Treatment | Access to Twisp River Horse Camp |
| FSR 4440460 road prism (ML 2, 0.4 miles in moderate burn area) | elevated runoff and dry ravel from moderate SBS burned hillslopes | Likely: increased flow and large woody debris in draws and culverts could erode roadway at point of flow<br><br>Moderate: Loss of road prism and increased sedimentation into Mad River drainage that affects fish critical habitat<br><br>High | No Treatment | Access the town of Gilbert historical site. |
| FSR 4430220 road prism (ML 3, 0.2 miles in moderate burn area) | Elevated runoff and dry ravel from moderate SBS burned hillslopes | Possible: increased flow and large woody debris in draws and culverts will overtop roadway<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>High | No Treatment | Access to Williams Trailhead |
| FSR 4440395 road prism (ML3, 0.2 miles in or below high/moderate burn area) | Elevated runoff and dry ravel from moderate-high SBS burned hillslopes | Possible: increased flow and large woody debris in draws and culverts will overtop roadway<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>High | No Treatment | No Treatment |

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|---|---|---|---|---|
| Mystery Camp Bridge | Potential scour in high flows and potential impact damage from mobilized debris. | Possible: increased flow and associated debris<br><br>Major: Loss of bridge investment<br><br>High | Monitor during storm inspection and response | Bridge not on 2019 inspection schedule, therefore inspection is required to monitor for scour and debris buildup. Further treatment may be required if monitoring warrants additional countermeasures |
| War Creek Bridge | Potential scour in high flows and potential impact damage from mobilized debris. | Possible: increased flow and associated debris<br><br>Major: Loss of bridge investment<br><br>High | Monitor during storm inspection and response | Bridge not on 2019 inspection schedule, therefore inspection is required to monitor for scour and debris buildup. Further treatment may be required if monitoring warrants additional countermeasures |
| East Fork Buttermilk Bridge | Potential scour in high flows and potential impact damage from mobilized debris. | Possible: increased flow and associated debris<br><br>Major: Loss of bridge investment<br><br>High | Monitor as part of regular program of work | Bridge due to be inspected in 2019 as regular program of work. Inspection is required to monitor for scour and debris buildup. Further treatment may be required if monitoring warrants additional countermeasures |
| West Fork Buttermilk CRAB | Potential scour in high flows and potential impact damage from mobilized debris. | Possible: increased flow and associated debris<br><br>Major: Loss of bridge investment<br><br>High | Monitor during storm inspection and response | Bridge not on 2019 inspection schedule, therefore inspection is required to monitor for scour and debris buildup. Further treatment may be required if monitoring warrants additional countermeasures |
| War Creek Bridge Camp | Potential scour in high flows and potential impact damage from mobilized debris. | Possible: increased flow and associated debris<br><br>Major: Loss of bridge investment<br><br>High | Monitor during storm inspection and response | Bridge not on 2019 inspection schedule, therefore inspection is required to monitor for scour and debris buildup. Further treatment may be required if monitoring warrants additional countermeasures |
| ML 3 Roads not surveyed, Further assessment required. | Potential scour in high flows | Likely: increased flow and large woody debris in draws and culverts will overtop roadway<br><br>Major: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>High | No treatments identified | Roads were not assessed due to various reasons such as fire suppression activity, blow down and time constraints. Further evaluation necessary. |

| Critical Value | Threat to Value | Probability/Magnitude/Risk | Treatment | Notes |
|---|---|---|---|---|
| NFS Trails. Sections of 19 trails, 32 miles total. Summarized in Trail Summary Table (above) | Potential erosion of trail and/or deposition of eroded material on trail | Likely: Moderate and High Soil Burn Severity<br><br>Moderate: Loss of trail tread<br><br>High | Trail storm proofing | |
| ML 2 Roads not surveyed, Further assessment required. | Potential scour in high flows | Likely: increased flow and large woody debris in draws and culverts will overtop roadway<br><br>Moderate: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>Intermediate | No treatment | Roads were not assessed due to various reasons such as fire suppression activity, blow down and time constraints. Further evaluation necessary. |
| ML 1 Roads not surveyed, Further assessment required. | Potential scour in high flows | Possible: Roads with minimal burn severity.<br><br>Minor: Loss of road prism and increased sedimentation into Twisp River drainage that affects fish critical habitat<br><br>Low | No treatment | Roads were not assessed due to various reasons such as fire suppression activity, blow down and time constraints. Further evaluation necessary. |
| Native Plant Communities | Invasive plant spread and establishment. | Very Likely:<br><br>Major<br><br>High to Very High | 30 acres (13 miles) of dozer line, staging areas and roads used as contingency lines on which significant ground disturbance (blading) has occurred. | |
| Soil productivity and hydrologic function | Loss of ash cap and surface soil through erosion and debris flows, decreased infiltration, damming and sedimentation of waterways | Very Likely: steep slopes, highly erodible soils, loss of canopy and ground cover<br><br>Moderate: loss of ash cap is not recoverable, short-term recoverable effects to hydrologic function<br><br>Very High | No treatment recommended--no cost-effective treatment available | |

| Critical Value | Threat to Value | Probability/Magnitude/Risk | Treatment | Notes |
|---|---|---|---|---|
| Critical habitat for upper Columbia ESU endangered spring chinook and threatened steelhead and threatened bull trout | Loss of critical habitat due to excess sedimentation and debris flow, increased turbidity, and duration and magnitude of sediment load | Likely: increased flow and highly erodible soils and steep slopes<br><br>Moderate: genetics, population size and poor habitat quality, spawning habitat<br><br>High | Treat roads and trails to minimize post-fire erosion and sedimentation of aquatic habitat where multiple values benefit from such treatment | |
| Twisp Pass cultural resource areas | Loss of cultural resource scientific data due to increased looting and erosion | Very Likely: increased ground visibility and highly erodible soils and steep slopes<br><br>Very High: loss of scientific data<br><br>High | No treatment recommended | Emergency data recovery recommended – Outside scope of BAER. Update forest Archeologist. |
| FS02209, the Eagle Creek Trail (Eligible) | Increased erosion and sedimentation from burned slopes, channelized water from upslope | Unlikely: This resource receives regular maintenance under Forest Program of Work.<br><br>Minor - would not impact qualifications for National Register of Historic Places<br><br>Very Low | No treatment recommended except for proposed trail storm proofing. | |